PlexiPulse®

OPERATIONS AND MAINTENANCE MANUAL

P/N 700507

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The proposed pump is currently being used on the market as the PlexiPulse®, which has already met UL544 standards. Other pumps, however, which are not presently UL listed, may be substituted in the future.

This manual will deal with two models of the PlexiPulse® pump. These models can be differentiated by the color of the Power button located on the front face of the pump case. These models will be referred to throughout this manual as a "Red Button Unit" or a "Green Button Unit".

The PlexiPulse® pump is to be used with PlexiPulse® wraps only.

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INTRODUCTION

The PlexiPulse® pump is a pneumatic compression device designed to increase blood flow in non-ambulatory or resting patients.

The veins in the calf and foot provide a natural pump that, when compressed, push blood back toward the heart. The PlexiPulse® pump helps this natural calf and foot pump circulate blood throughout the system when the normal circulatory process is disabled due to surgery, injury, or disease.

The PlexiPulse® pump is connected by tubing to individual inflatable calf wraps and foot wraps that can be operated together or independently. Each calf and foot wrap is designed to provide a comfortable fit around the calf and foot, with an air bladder that squeezes "all around" the soleal sinus in the calf and venous plexus in the arch as well as collateral veins in both the calf and foot.

Location (one or both calves, one or both feet, or one or both calf and foot combination), frequency, and intensity of pulsation, as well as duration of air bladder inflation is controlled by a microprocessor and monitored by a pressure feedback system built into the pump, ensuring the patient will receive the desired pulsation intensity.

INDICATIONS

The PlexiPulse® pump is indicated for patients who would benefit from a pneumatic compression device that would help to:

- Prevent Deep Venous Thrombosis (DVT).
- Prevent venous stasis.
- Enhance arterial circulation.
- Reduce post-operative pain and swelling.
- Reduce edema.
- Reduce wound healing time.
- Treat and assist healing of cutaneous ulceration.
- Reduce compartmental pressures.
- Reduce the need for anticoagulant medications.

CONTRAINDICATIONS

Patient conditions for which the PlexiPulse® pump is contraindicated include:

- Presumptive evidence of congestive heart failure.
- Suspected pre-existing DVT.

SAFETY TIPS

Do Not Walk in Foot Wrap - Foot wraps must always be removed before a patient is allowed to walk.

Regular Skin Assessments - Skin condition should be assessed regularly, particularly for:

- Vascularly compromised patients.
- Diabetics with reduced feeling in extremities.

Liquids - Avoid spilling liquids on any part of the pump case. If spills do occur:

- Clean liquid from case wearing rubber gloves or other electrical insulators to avoid shock.
- Check operation of controls and other components in area of spill.
- Perform applicable troubleshooting procedures. See the **Troubleshooting** and **Maintenance** chapters of this manual for more information.

NOTE: *Liquids remaining on the electronic controls can cause corrosion which may cause the electronic components to fail. Component failures may cause the unit to operate erratically, possibly producing potential hazards to patient and staff.*

FEATURES

The PlexiPulse® All-In-One System

The PlexiPulse® All-In-One system offers a therapeutic edge in foot and leg compression. The system can accommodate any of the following PlexiPulse® wraps with just one pump; the user can even use different wraps on the left and right side at the same time.

- **Foot Wrap** - Helps provide excellent proximal DVT prophylaxis by squeezing "all around" the venous plexus in the arch and collateral veins of the foot.
- **Calf Wrap** - Shown with numerous products to help provide good distal and proximal DVT prophylaxis.
- **Combo Wrap** - A combination of both therapies may provide the most aggressive DVT prophylaxis.
- **Custom Wrap** - Helps provide compression therapy for under cast and other specialized uses.

Individualized Patient Therapy

When prescribed, the PlexiPulse® pump can be adjusted to provide pulsation therapy that is customized in location (one or both sides), frequency, intensity, and duration to meet individual patient needs. The ranges of adjustment, as well as the "standard" pulsation settings, are listed below:

- **Location of Pulsation** - Left, Right, or Both sides - "standard" is Both sides.
- **Frequency of Pulsation (Cycle Time)** - 20 to 60 seconds - "standard" is 20 seconds.
- **Intensity of Pulsation (Pressure Settings)** - 1 to 5 - "standard" is 3.
- **Duration of Inflation (Hold Time)** - 1 to 5 seconds - "standard" is 2 seconds.

"Ramping-Up" to Desired Impulse Pressure

The PlexiPulse® pump begins pulsation at an intensity (pressure) less than that selected, and "ramps-up" to the desired amount of pressure over a period of approximately 2-3 minutes. "Ramping-Up" helps to improve patient compliance by increasing comfort.

Pressure Feedback

The intensity of pulsation (inflation pressure of the air bladder in the disposable wrap) is automatically monitored and adjusted to ensure the patient receives the desired pulsation intensity. If the disposable wrap is loose, air bladder pressure is increased; if the disposable wrap is tight, air bladder pressure is decreased.

Pressure feedback and the resulting automatic compensation help to avoid the incidence of skin breakdown, patient discomfort, reduced therapy, and constant alarming, common in other external pneumatic compression devices.

Microprocessor Control Panel

The PlexiPulse® pump has a user-friendly, menu-driven, control panel which provides prompts to lead the user through selection and operation of the pump functions. See the **Quick Reference Guide** and **Operating Instructions** sections of this manual for more information.

PATIENT PLACEMENT

Before beginning patient placement, personnel should familiarize themselves with the procedures outlined in the **Quick Reference Guide** and **Operating Instructions** chapters of this manual as well as the procedures listed below:

NOTE: *The procedures described below are for placement of the PlexiPulse® pump in a hospital environment where properly ground three-prong outlets are provided. Before a PlexiPulse® pump can be placed in a home environment, outlets in the home must be checked for proper grounding. If the home outlet to be used is not a properly ground three-prong outlet, a* **Patient's Assumption of Risks** *form must be obtained from the KCI Legal Department and a properly grounded UL-listed two-prong adapter must be used.*

1. Hang the PlexiPulse® pump case on footboard of bed using adjustable hanging arms located on each side of the pump case.

2. Apply disposable wrap(s) as shown below:

Right/Left Foot Wrap Instructions

❶ Position foot over disposable as shown. Fold first flap over top of foot.

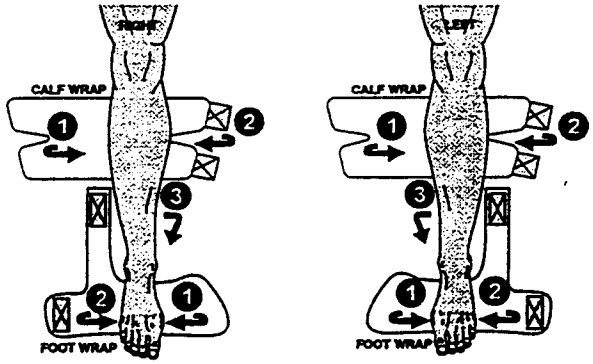
❷ Fold second flap (with hook-and-loop patch) comfortably over top of first flap and secure.

❸ Wrap back strip comfortably over heel and secure.

Universal Calf Wrap Instructions

❶ Position Calf Wrap behind calf as shown. Fold first flap over top of leg.

❷ Fold second flap (with hook-and-loop patch) comfortably over top of first flap and secure.



FOOT AND CALF WRAPS

Custom Wrap Instructions

❶ Wrap extremity with stretch cotton several times.

❷ Using a Custom Wrap (part #235502), partially inflate bladder (two-thirds to three-quarters) by blowing air into tubing. Kink tube to prevent leakage. This will help ensure there is enough room for the bladder to inflate.

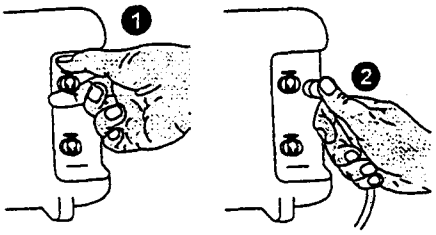
❸ Place bladder in location of desired compression, ensuring red spigot is easily accessible.

❹ Wrap cast material around the bladder and under the red connector several times to help build up the base and to help prevent pain at the connector.

❺ Finish the cast.

❻ Connect tubing on Custom Wrap to tubing on Pump. (This connector can easily be detached whenever the patient needs to move away from the pump.)

3. Connect disposable wrap(s) to pump case as shown below:



❶ Press valve tab to ensure valve is prepared for tube insertion. Valve will "click" if it was not in correct position to receive tube.

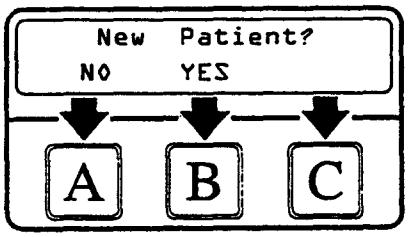
❷ Insert tube connector into appropriate valve. Valve will "click" when tube is locked into place.

NOTE: *Press valve tab to release and remove connector.*

4. Plug pump case power cord into a 115 VAC 15 Amp outlet.

NOTE: *Be sure power to this outlet is not controlled by a wall switch.*

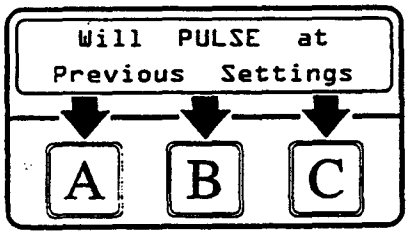
5. Press POWER switch located on front face of pump case to activate the PlexiPulse® pump. The display shown at right will appear, **either:**



- Press "A" under NO, if the patient is not a new patient.

  The unit will begin pulsation at previous settings held in memory since the unit was last turned off.

  The display shown at right will appear temporarily and then automatically return to the Home Display.

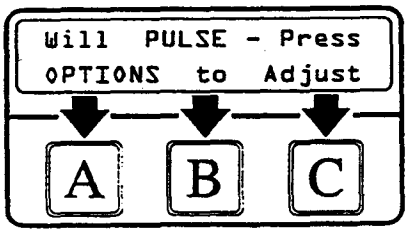


  - Press OPTIONS button to begin adjustments as described in the Operating Instructions chapter of this manual; or

- Press "B" under YES, if the patient is a new patient or if "standard" settings are desired.

  The unit will begin pulsation at the "standard" settings, and can now be adjusted and customized for the individual patient.

  The display shown at right will appear.



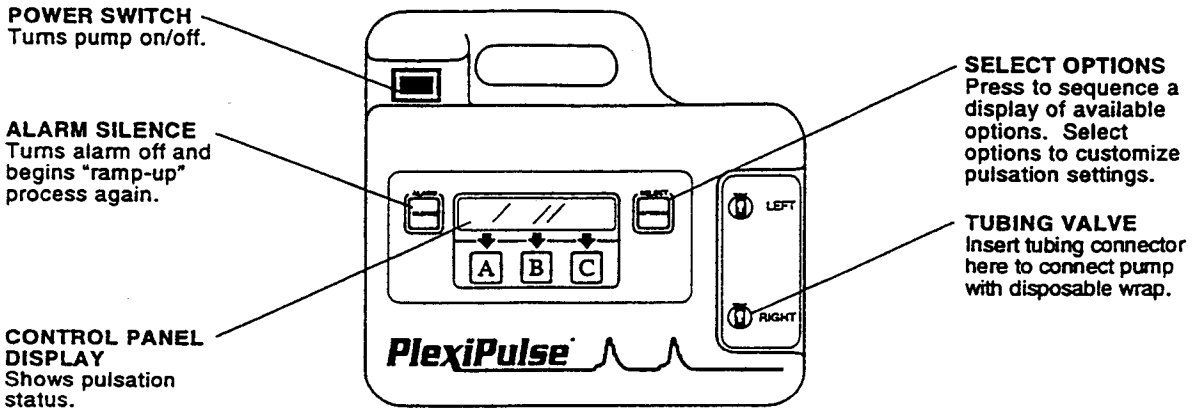
  - Press OPTIONS button to begin adjustments as described in the Operating Instructions chapter of this manual.

  - If OPTIONS button is not pressed, the unit will automatically begin to pulse at "standard" settings: – **Both, Cycle 20 sec., Hold 2 sec., Pressure Settings 3** – and then automatically return to the Home Display.

- If neither "A" nor "B" are pressed after 25 seconds, the unit will automatically begin pulsation at previous settings and return to the Home Display.

QUICK REFERENCE GUIDE

PUMP CONTROLS



PATIENT PLACEMENT

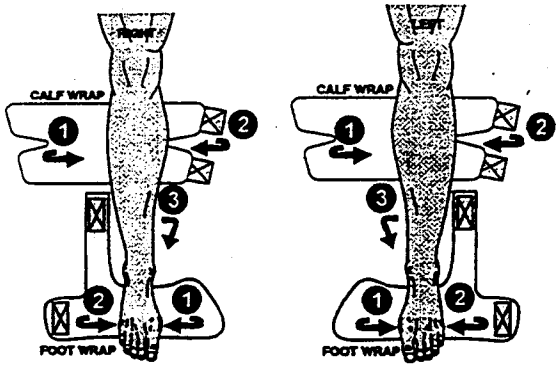
1. Apply disposable wrap(s) as shown below:

Right/Left Foot Wrap Instructions

1. Position foot over disposable as shown. Fold first flap over top of foot.
2. Fold second flap (with hook-and-loop patch) comfortably over top of first flap and secure.
3. Wrap back strip comfortably over heel and secure.

Universal Calf Wrap Instructions

1. Position Calf Wrap behind calf as shown. Fold first flap over top of leg.
2. Fold second flap (with hook-and-loop patch) comfortably over top of first flap and secure.

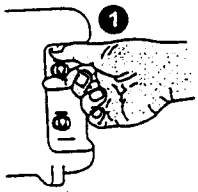


FOOT AND CALF WRAP

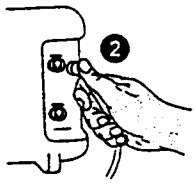
Custom Wrap Instructions

1. Wrap extremity with stretch cotton several times.
2. Using a Custom Wrap (part #235502), partially inflate bladder (two-thirds to three-quarters) by blowing air into tubing. Kink tube to prevent leakage. This will ensure there is enough room for the bladder to inflate.
3. Place bladder in location of desired compression, ensuring red spigot is easily accessible.
4. Wrap cast material around the bladder and under the red connector several times to help build up the base and to help prevent pain at the connector.
5. Finish the cast.
6. Connect tubing on Custom Wrap to tubing on Pump. (This connector can easily be detached whenever the patient needs to move away from the pump.)

2. Connect disposable wrap(s) to pump case as shown below:



1. Press valve tab to ensure valve is prepared for tube insertion. Valve will "click" if it was not in correct position to receive tube.



2. Insert tube connector into appropriate valve. Valve will "click" when tube is locked into place.

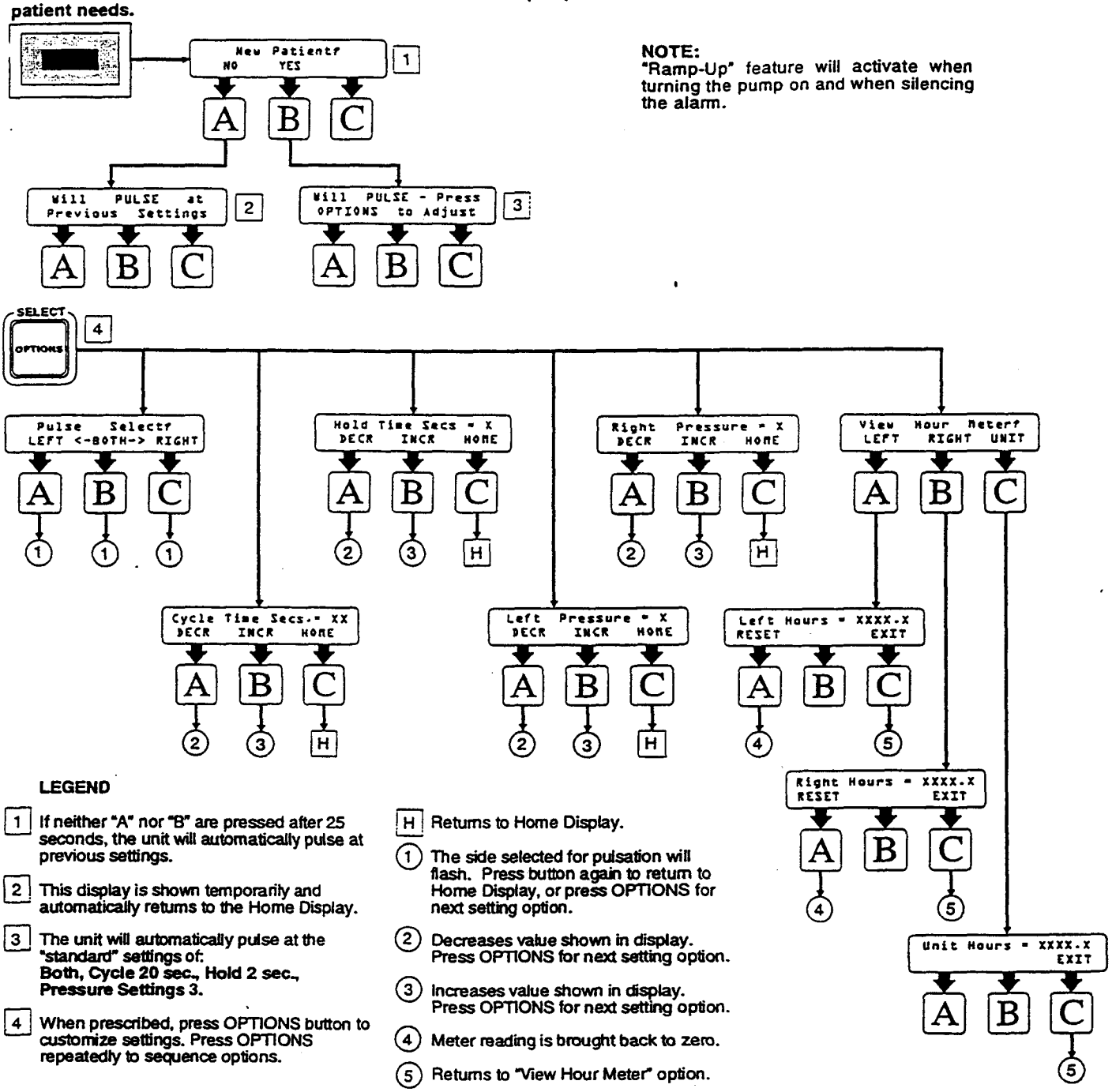
3. Follow flow chart in this chapter to activate the PlexiPulse® pump and to customize "standard" settings to individual patient needs.

NOTE:
Press valve tab to release and remove connector.

NOTE:
Do Not Walk with Foot Wrap on Foot.

OPERATING INSTRUCTIONS

The flow chart below shows how to activate the PlexiPulse® pump and customize "standard" pulsation settings to individual patient needs.


New Patient?
NO YES
1
A B C
Will PULSE at Previous Settings
2
Will PULSE - Press OPTIONS to Adjust
3
SELECT
OPTIONS
4
Pulse Select? LEFT <-BOTH-> RIGHT
Hold Time Secs = X DECR INCR HOME
Right Pressure = X DECR INCR HOME
View Hour Meter? LEFT RIGHT UNIT
Cycle Time Secs.= XX DECR INCR HOME
Left Pressure = X DECR INCR HOME
Left Hours = XXXX.X RESET EXIT
Right Hours = XXXX.X RESET EXIT
Unit Hours = XXXX.X EXIT
A B C
1 2 3 4 5 H

NOTE:
"Ramp-Up" feature will activate when turning the pump on and when silencing the alarm.

LEGEND

1. If neither "A" nor "B" are pressed after 25 seconds, the unit will automatically pulse at previous settings.
2. This display is shown temporarily and automatically returns to the Home Display.
3. The unit will automatically pulse at the "standard" settings of: **Both, Cycle 20 sec., Hold 2 sec., Pressure Settings 3.**
4. When prescribed, press OPTIONS button to customize settings. Press OPTIONS repeatedly to sequence options.

H Returns to Home Display.

(1) The side selected for pulsation will flash. Press button again to return to Home Display, or press OPTIONS for next setting option.

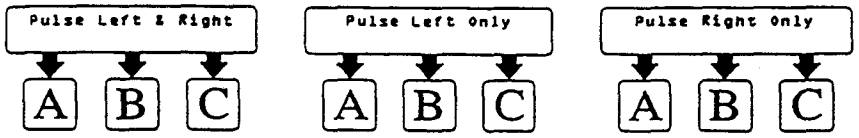
(2) Decreases value shown in display. Press OPTIONS for next setting option.

(3) Increases value shown in display. Press OPTIONS for next setting option.

(4) Meter reading is brought back to zero.

(5) Returns to "View Hour Meter" option.

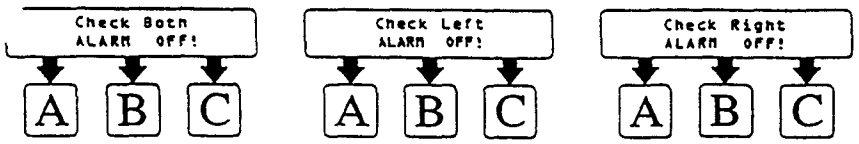
Home Displays



Each Home Display indicates:

- Which side is selected to receive pulsation. ("Left", "Right", or "Left & Right")
- Which side has just received pulsation. ("Left", or "Right" will flash)

Alarm Displays



Each Alarm Display indicates:

- Which side is experiencing an abnormality. ("Left", "Right", or "Both")
- Silence the alarm by pressing either the "A", "B", "C" or Alarm Silence button.
- The unit will alarm again within approximately 5 cycles (2 to 5 minutes), if the abnormality has not been corrected.

OPERATING INSTRUCTIONS

CONTROL PANEL FUNCTIONS

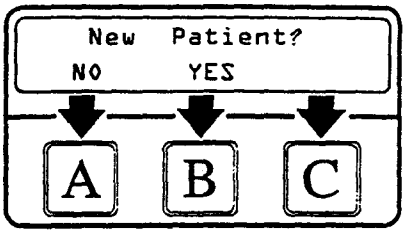
Power-Up Procedures

1. Plug pump case power cord into a 115 VAC 15 Amp outlet.

   NOTE: *Be sure power to this outlet is not controlled by a wall switch.*

2. Press POWER switch located on front face of pump case to activate the PlexiPulse® pump.

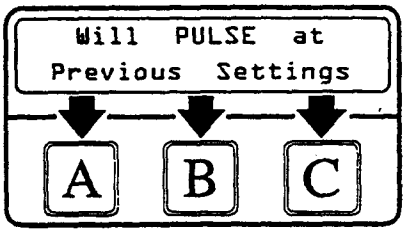
   The display shown at right will appear, **either:**



   - Press "A" under NO, if the patient is not a new patient.

     The unit will begin pulsation at previous settings held in memory since the unit was last turned off.

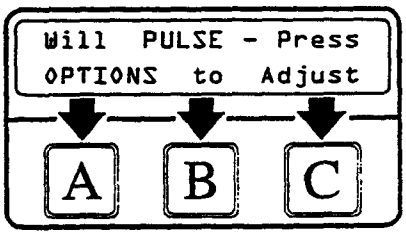
     The display shown at right will appear temporarily and then automatically return to the Home Display, **or**



   - Press "B" under YES, if the patient is a new patient or if "standard" settings are desired.

     The unit will begin pulsation at the "standard" settings and can now be adjusted and customized for the individual patient.

     The display shown at right will appear.



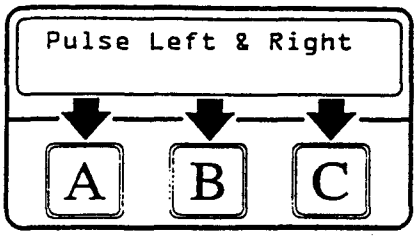
     - Press OPTIONS button to begin adjustments to the "standard" pulsation settings as described in the **Pulsation Adjustment Procedures** section of this chapter.

     - If OPTIONS button is not pressed, the unit will automatically begin to pulse at "standard" settings-- **Both, Cycle 20 sec., Hold 2 sec., Pressure Settings 3** -- and then automatically return to the Home Display.

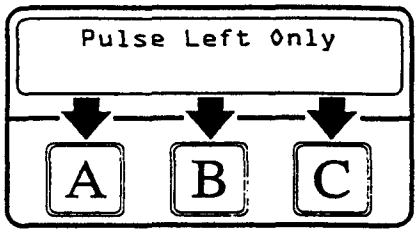
   NOTE: *If neither "A" nor "B" are pressed after 25 seconds, the unit will automatically begin pulsation at previous settings and automatically return to the Home Display.*

3. After previous pulsation settings have been accepted, or have been adjusted using the SELECT OPTIONS button, one of the **Home Displays** shown at right will appear and indicate the following:

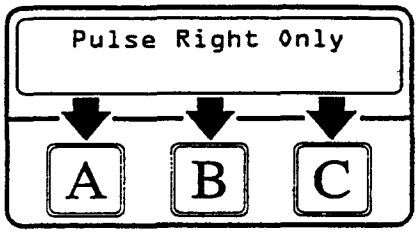
   - Both left and right sides are selected to alternately receive pulsation therapy.
   - Pulsation on.
   - The side that has just received a pulsation will flash.



   - Only left side is selected to receive pulsation therapy.
   - Pulsation on.



   - Only right side is selected to receive pulsation therapy.
   - Pulsation on.



Pulsation Therapy

1. When turning the pump on or after silencing the alarm, pulsation always begins at a lower amount of pressure than was selected, and then "ramps-up" to the selected amount of pressure over a period of approximately 2-3 minutes. "Ramping-up" helps maximize patient comfort.

2. As pulsation is provided, inflation pressures for each side are monitored. With pressure feedback, the pump will automatically adjust its output to provide the amount of pressure selected, compensating for a disposable wrap that is too loose or too tight.

3. If pressure oddities (i.e., disconnected external wrap, kinked hose, a damaged wrap, or an open disposable wrap) are detected for 5 consecutive cycles, pulsation will continue while an audible alarm will sound.

   NOTE: *The alarm can be temporarily silenced by pressing either the "A", "B", "C", or "Alarm Silence" button. The unit will "ramp-up", perform approximately 5 cycles, and then alarm again if the abnormality has not been corrected. Refer to the* ***Alarm Procedures*** *section of this chapter for more information.*

   Additionally, if a unit malfunction is detected, an audible alarm will sound and the unit will ***stop pulsing.*** *If turning the pump off and on and reconnecting the tubing does not resolve the abnormality, contact your local sales representative or NuTech® Customer Service (800) 446-6303.*

Pulsation Adjustment Procedures (SELECT OPTIONS)

When prescribed, pulsation settings may be adjusted. Pulsation settings are sequentially displayed by repeatedly pressing the SELECT OPTIONS button shown at right.

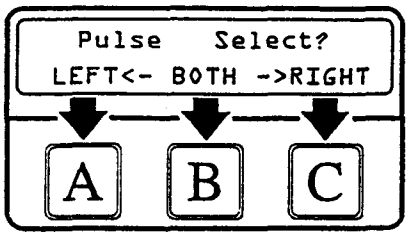
The options will appear in the order listed below:

- Pulse Select?
- Cycle Time
- Hold Time
- Left Pressure
- Right Pressure
- View Hour Meter?
- For Service Use Only

  NOTE: ***The "For Service Use Only" option is for use by biomedical staff only.***

NOTE: *If no option selections are made, in approximately one minute all SELECT OPTION Displays will automatically return to the Home Display.*

Pulsation Location ("Pulse Select?") Adjustment



1. Press SELECT OPTIONS button until "Pulse Select?" is displayed as shown at right.

   Use "Pulse Select?" to select the side(s) to receive pulsation therapy.

   Location can be adjusted to left, right, or both sides.

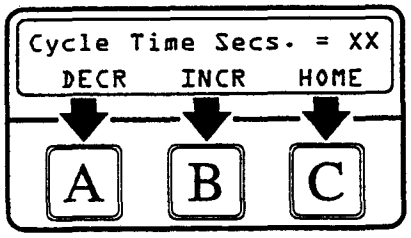
2. Press either the "A", "B", or "C" button to direct pulsation as described below:

   - Press "A" under LEFT to direct pulsation to only the left side.
   - Press "B" under BOTH to direct pulsation to both sides on an alternating cycle.
   - Press "C" under RIGHT to direct pulsation to only the right side.

   NOTE: *The side(s) selected for pulsation, either "LEFT", "BOTH", or "RIGHT", will flash.*

3. Press the button under the selection that is flashing to return to the Home Display.

Cycle Time Adjustment



1. Press SELECT OPTIONS button until "Cycle Time Secs. = XX" is displayed as shown at right.

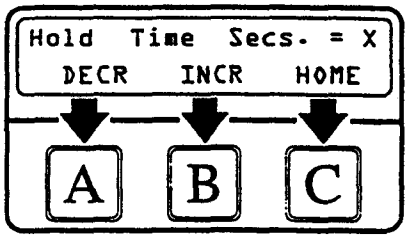
   Use "Cycle Time Secs. = XX" to view and adjust the approximate time required for the disposable wrap to inflate, hold pressure, and then deflate, in the number of sides (one or both) selected.

   Example: If both sides are selected for pulsation, and the cycle time is 30 seconds, **each** side will, on an alternating basis, inflate, hold, and deflate over a period of about 30 seconds. If only one side is selected for pulsation, and the cycle time is 30 seconds, the disposable wrap on that side will inflate, hold, and deflate over the period of approximately 30 seconds.

   Cycle time can be adjusted from 20 to 60 seconds in 10 second increments.

2. Press "A" under DECR to decrease cycle time.
3. Press "B" under INCR to increase cycle time.
4. When the desired cycle time is shown, **either:**
   - Press "C" under HOME to return to the Home Display, **or**
   - Press SELECT OPTIONS button to display the next option.

Hold Time Adjustment



1. Press SELECT OPTIONS button until "Hold Time Secs. = X" is displayed as shown at right.

   Use "Hold Time Secs. = X" to view and adjust the time that air is held in the individual disposable wrap (between inflation and deflation), during a cycle.

   Hold time is the same for each side regardless of whether one or both sides are selected.

   Hold time can be adjusted from 1 to 5 seconds in 1 second increments.

2. Press "A" under DECR to decrease hold time.

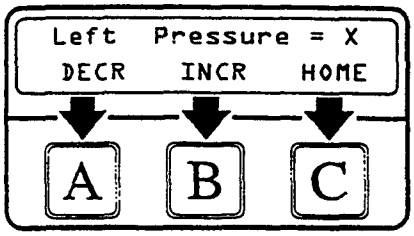
3. Press "B" under INCR to increase hold time.

4. When the desired hold time is shown, **either:**

   - Press "C" under HOME to return to the Home Display, **or**
   - Press SELECT OPTIONS button to display the next option.

Inflation Pressure Adjustment

1. Press SELECT OPTIONS button until "Left Pressure = X" is displayed as shown at right.



   Use "Left Pressure = X" to view and adjust the pressure with which the left disposable wrap is inflated during each cycle.

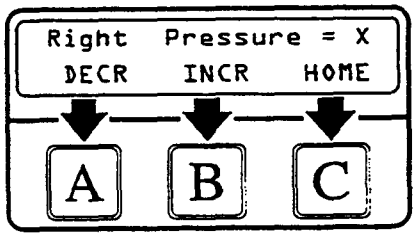
   Pressure settings can be adjusted from a value of 1 to 5.

   The following chart shows what each pressure setting corresponds to in mmHg at the wrap.

Pressure Setting	Pressure (mmHg)*
1	140
2	150
3	160
4	170
5	180

**Prior to leaving the factory, every PlexiPulse® pump is tested using a one-liter infant test lung to ensure that the pump operates to produce pressures within +/- 15 mmHg of these intended pressures.*

2. Press "A" under DECR to decrease pressure.
3. Press "B" under INCR to increase pressure.
4. When the desired left pressure setting is shown, **either:**
   - Press "C" under HOME to return to the Home Display, **or**
   - Press SELECT OPTIONS button to display the next option.
5. Press SELECT OPTIONS button until "Right Pressure = X" is displayed as shown at right.



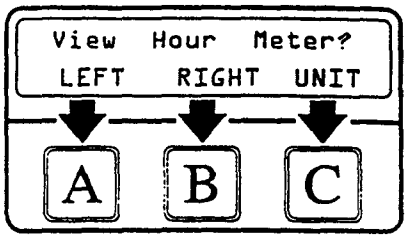
   Use "Right Pressure = X" to view and adjust the pressure with which the right disposable wrap is inflated during each cycle.

   Adjustment of the pressure in the right disposable wrap is identical to that described for the left in Steps 1-3.

6. When the desired right pressure is shown, **either:**
   - Press "C" under HOME to return to the Home Display, **or**
   - Press SELECT OPTIONS button to display the next option.

Therapy Hours Meter

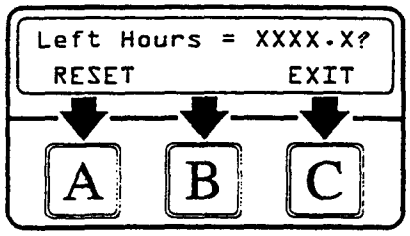
1. Press SELECT OPTIONS button until "View Hour Meter?" is displayed as shown at right.



   Use "View Hour Meter?" to view the number of therapy hours received by the left and right sides and the unit.

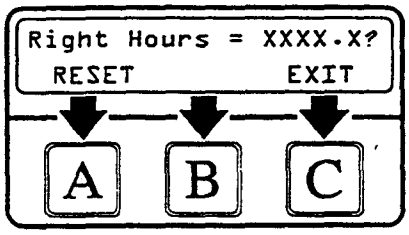
   Left, Right, and Unit Hours are shown to the nearest 1/10 hour.

2. Press "A" under LEFT to view therapy hours provided to the left side. The display shown at right will appear.



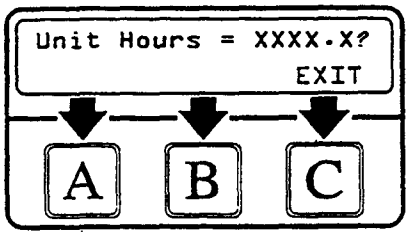
   - Press "A" again to reset the number of hours for this side to 0.
   - Press "C" under EXIT to return to the "View Hour Meter?" display.

3. With the "View Hour Meter?" display showing, press "B" under RIGHT to view therapy hours provided to the right side. The display shown at right will appear.



   - Press "A" again to reset the number of hours for this side to 0.
   - Press "C" under EXIT to return to the "View Hour Meter?" display.

4. With the "View Hour Meter?" display showing, press "C" under UNIT to view total number of hours of pump operation. The display shown at right will appear.



   The Unit Hours will be useful to your biomedical department.

   Unit Hours cannot be reset.

   - Press "C" under EXIT to return to the "View Hour Meter?" display.
   - Press SELECT OPTIONS to begin the sequence of options again.

Alarm Procedures

An alarm will sound and the pump will continue pulsing if one of the following occurs for approximately **5 consecutive cycles:**

- Disconnected external wrap
- Open disposable wrap
- Damaged wrap
- Kinked hose

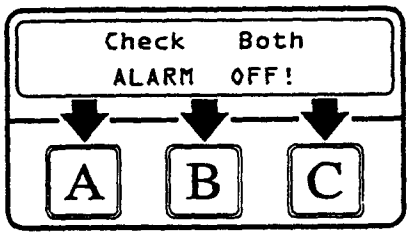
A visual inspection of the PlexiPulse® system will usually indicate which of the above conditions is present, and the appropriate steps can then be taken to fix the situation.

An alarm will sound and the pump will **immediately** (or within 3 cycles if during "ramp-up") stop pulsing if the unit detects an internal malfunction or if the external tubing is disconnected at the pump. If turning the pump off and on and reconnecting the tubing does not resolve the abnormality, please call your local sales representative or NuTech® Customer Service (800) 446-6303.

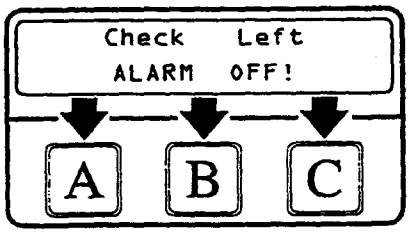
One of the Alarm Displays shown at right will appear and indicate the following:

NOTE: *The alarm can be temporarily silenced by pressing either the "A", "B", "C" or Alarm Silence buttons. The unit will "ramp-up", perform approximately 5 cycles, and then alarm again if the abnormality has not been corrected.*

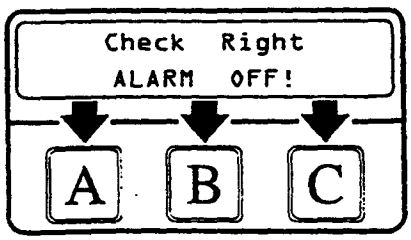
- An abnormality is detected on both sides.
- Press either the "A", "B", "C" or Alarm Silence button to silence the alarm.



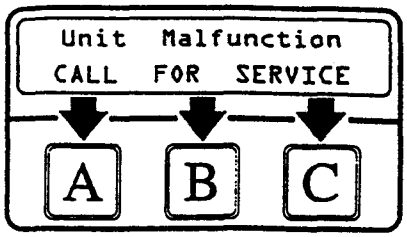
- An abnormality is detected on the left side.
- Press either the "A", "B", "C" or Alarm Silence button to silence the alarm.



- An abnormality is detected on the right side.
- Press either the "A", "B", "C" or Alarm Silence button to silence the alarm.



- The unit is detecting an internal abnormality.
- Call your local sales representative or NuTech® Customer Service (800) 446-6303.



Power-Down Procedures

1. Press POWER switch to turn off the PlexiPulse® pump.
2. Unplug pump case power cord from wall outlet.

   NOTE: *Pulsation settings are retained in memory when the unit is turned off. During the power-up procedures, the operator will be given an option to either reinstate the previous pulsation settings, or to go to the "standard settings" for a new patient.*

3. Remove and discard disposable wraps and tubing.

PREPARATION FOR USE

Preparing the PlexiPulse® pump for use entails inspecting the unit for any damaged or unserviceable components as well as performing procedures outlined in the **Set-Up Procedures**, **Check-out Procedures**, and **Infection Control Procedures** sections of this chapter.

SET-UP PROCEDURES

The unit is shipped from the manufacturer fully assembled and ready to be put into service with the addition of the articles listed in Step 3 below. Before putting the unit into service, the following steps should be performed:

1. Open carton. **Do not use sharp instruments to open carton.** Damage to the pump case could result.
2. Inspect pump case for visible damage occurring from transport. Contact carrier and NuTech® Customer Service (800) 446-6303 immediately if damage is observed.
3. Gather the following articles from inventory:
   - One PlexiPulse® pump and Quick Reference Guide.
   - One Disposable wrap package with left and right wraps or 1 pair of custom wraps (sterile wraps can also be ordered, if needed).
4. Attach the Quick Reference Guide to the pump case using the re-usable ty-wrap around the case handle.
5. Perform the **Check-Out Procedures** described below:

CHECK-OUT PROCEDURES

Procedures to verify proper operation of the PlexiPulse® pump are provided in the following steps. Refer to the **Quick Reference Guide** and **Operating Instructions** chapter of this manual if necessary. If the results of the procedure are not as specified, refer to the **Troubleshooting** chapter of this manual.

1. Plug pump case power cord into a 115 VAC 15 Amp outlet. Press POWER switch. Observe the following:
   - Light in switch illuminates.
   - Pump is activated.
   - "New Patient?" display appears at control panel.
2. Press the "B" button for YES in response to the display prompt. Observe the following:
   - The unit will automatically begin pulsation at the "standard" pulsation settings. You should be able to hear and feel air coming out from the tubing connectors..
   - As SELECT OPTIONS button is pressed, sequencing the pulsation options, the settings viewed are: **Both, Cycle 20 sec., Hold 2 sec., Pressure Settings 3.**
3. Press the SELECT OPTIONS button to sequence and customize available Pulsation Therapy options. Follow procedures outlined in the **Pulsation Adjustment Procedures** section of the **Operating Instructions** chapter of this manual. Results of the procedures must correspond with those outlined.

NOTE: *An electrical leakage test has already been performed on the unit. Leakage is below 100 microamps. All additional required tests to meet UL544 standards have also been performed prior to shipment.*

To Test Pressures At The Wrap

1. Remove hose from red connector at disposable wrap. Insert 5/32 inch Tee fitting into hose and use 1-2 inches of the same size tubing to connect the other side of Tee fitting to red connector.

2. Connect bottom of Tee fitting to pressure gauge. Place disposable wrap around foot as shown in **Patient Placement** chapter. Insert tube connector into tubing valve on pump.

3. Press POWER switch to turn pump on. Press "B" under YES. Allow the pump to "ramp-up", approximately 5-7 cycles (2-3 minutes). Gauge pressure should read 160 +/- 15 mmHg.

4. To verify all pressure settings, follow procedures in the **Pulsation Adjustment Procedures** section of the **Operating Instructions** chapter to customize pump. Pressure ranges for all settings are as follows:

Pressure Setting	Pressure (mmHg)*
1	140
2	150
3	160
4	170
5	180

**Prior to leaving the factory, every PlexiPulse® pump is tested using a one-liter infant test lung to ensure that the pump operates to produce pressures within +/- 15 mmHg of these intended pressures.*

INFECTION CONTROL PROCEDURES

Delivery Involving Entering Patient's Room

If patient contact (defined as entering the patient's room) is required when delivering or performing maintenance on the PlexiPulse® pump, the following special precautions must be observed to reduce the possibility of contamination:

1. Dress appropriately with regard to entering patient care area during delivery.
2. The PlexiPulse® pump and disposable wraps must be covered with plastic or in plastic bags.
3. Hands must be washed in the following situations:
   - Immediately prior to entering patient's room.
   - After removing disposable gloves.
   - Immediately after leaving patient's room.
4. Disposable gloves must be worn for contact with all items that may have been contaminated.
5. Wearing an impervious apron or gown is recommended when in contact with body secretions.

WARNING

Sick employees must remain outside patient areas.

Removal Of Unit From Hospital

In order to provide adequate infection control procedures when removing the PlexiPulse® pump from the hospital, the following precautions **must** be observed:

IMPORTANT

All pumps and disposable wraps that have already been in use are to be treated as contaminated units.

1. Technician must wear disposable gloves. An impervious apron or gown may be worn if contact with body secretions is possible.
2. Place pump case in plastic bag in preparation for removal.
3. Discard used disposable wraps. Remove apron and gloves. Discard in appropriate container.
4. Wash hands.
5. Move unit to transport vehicle.
6. Return unit to authorized service facility for complete disinfection procedures.

Decontamination Procedures At Authorized Service Facility

Protective Clothing

When performing cleaning and disinfecting procedures at the service center or hospital, it is recommended that personnel dress as follows:

1. Wear heavy rubber or disposable gloves and an impervious apron or gown to prevent contact with cleaning solutions and contaminated equipment.
2. Wear protective eye wear to prevent splashing cleaning materials into eyes.

WARNINGS

Germicide concentrates can cause serious corneal damage if allowed to contact the eyes. If contact does occur, flush immediately with generous amounts of flowing fresh water. Should irritation persist, consult a physician.

Do not use spray bottles to apply cleaning solutions. Spraying of solutions can lead to inhalation of toxic fumes.

Avoid spilling fluids on any part of the pump case. Fluids settling into electronic controls can cause corrosion which may cause the electronic components to fail. Component failures may cause the air supply unit to operate erratically, possibly producing a potential hazard to patient or staff.

IMPORTANT

Germicidal concentrates can damage the touch pad control switches and power switch. Do not allow these agents to come in contact with these areas. It is recommended that a cloth moistened with denatured alcohol be used to clean and disinfect these areas only.

The PlexiPulse® Pump Case

1. Clean pump case after every placement.
2. Wipe all areas of the pump case (except touch pad and power switch areas) using a cloth and an EPA registered hospital-strength disinfectant solution (follow manufacturer's recommendations).
3. Remove and clean **all** visible soiling.
4. If blood or body fluids are present on the surface of the pump, follow the two step cleaning process recommended by OSHA (i.e., First apply an EPA registered tuberculocidal disinfectant. Remove and clean all visible soiling. Then wipe down with 1:100 sodium hypochlorite solution or an EPA registered hospital-strength disinfectant solution.)
5. Remove and clean air filter.
6. Wash hands.
7. Allow pump case to air dry.

Foam Air Filter

1. Clean air filter after every placement.
2. Remove air filter from pump case.
3. Wash filter (with water) and squeeze or towel dry.
4. Spray filter with (spray) disinfectant.
5. Allow filter to air dry.
6. Wash hands.
7. Place air filter back into pump case.

NOTE: *Personal Protective Equipment (PPE) should be worn and disposed of properly when handling all contaminated (according to hospital policy and CDC guidelines).*

In-Line Air Filter/Dryer

1. Check every 6 months or 1,000 hours of operation.
2. Verify paper color inside filter is white. Red indicates the paper is saturated with moisture and needs to be replaced.
3. The location of the in-line air filter/dryer can be found in the **Maintenance** chapter.
4. Before removing the filter (when saturated), observe how it is mounted.
5. To remove the filter, pull off the hoses from both ends, and replace in the same direction as the previous filter.

TROUBLESHOOTING

Troubleshooting procedures for the PlexiPulse® pump are provided in the following tables. Each table deals with a specific symptom and provides a listing of possible causes and their remedy.

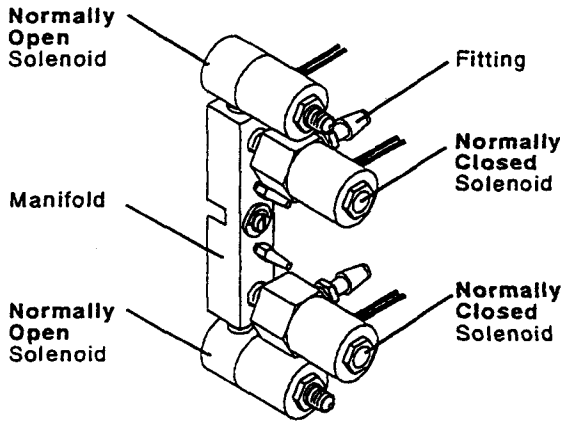
Diagnosis of the abnormality can be performed by substituting functioning spare parts.

Each table assumes the unit is properly installed.

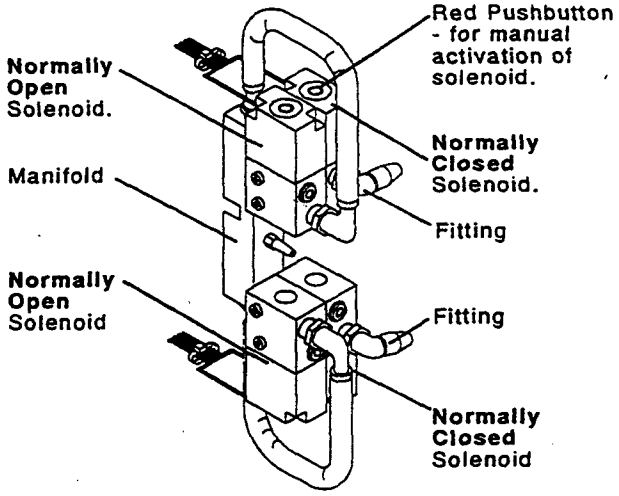
All Cautions and Warnings set forth in the **Maintenance** chapter of this manual should be observed during testing and repair.

NOTE: ***These procedures should be performed only by a qualified service technician.***

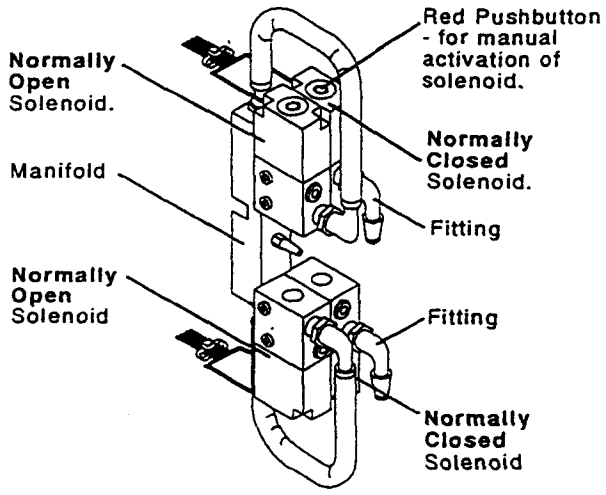
The Troubleshooting table should be used in conjunction with the **Maintenance** chapter of this manual as well as the exploded views of major components and schematic layout of the electrical and pneumatic systems provided in this chapter.



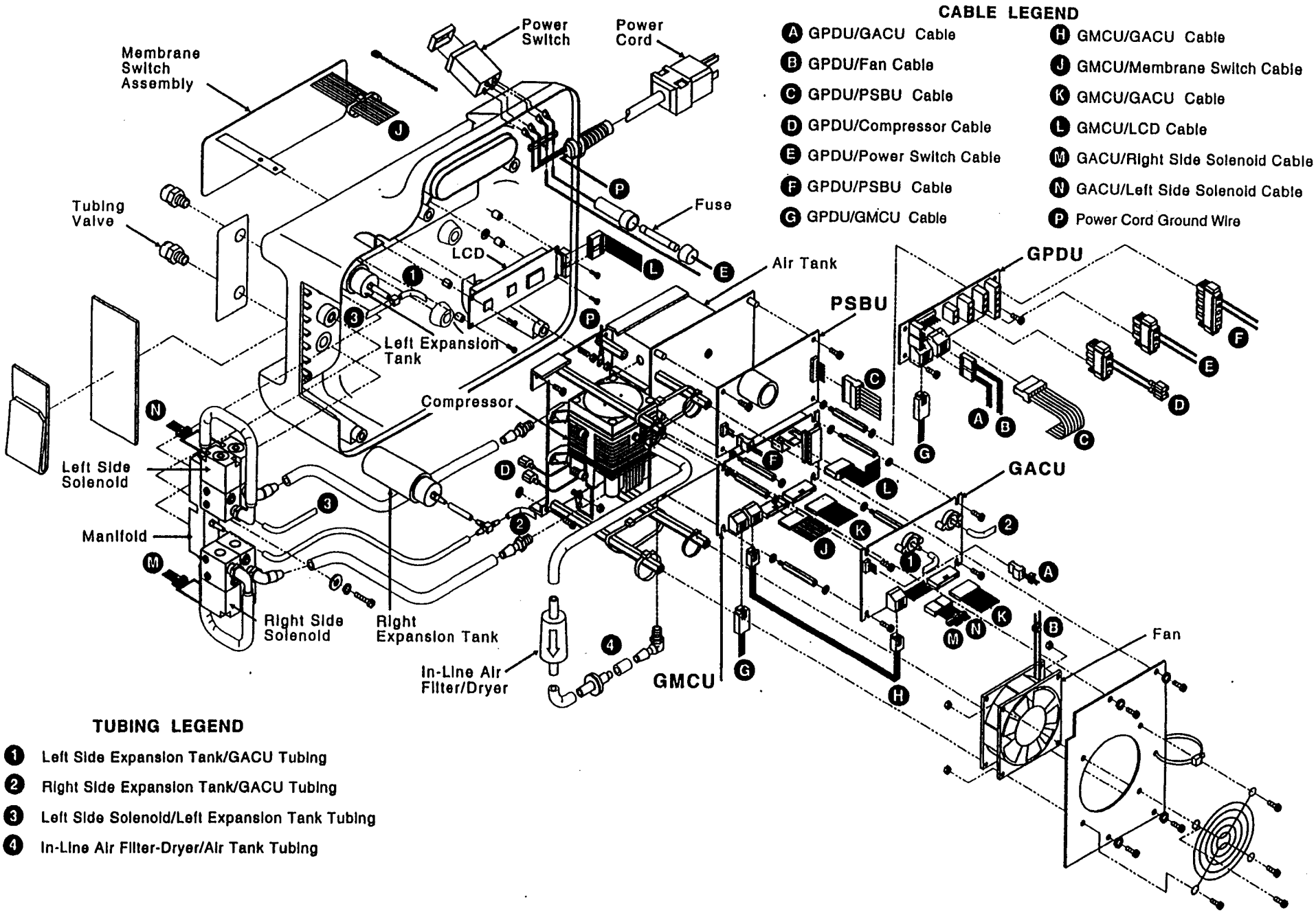
RED BUTTON UNIT - ROUND SOLENOIDS



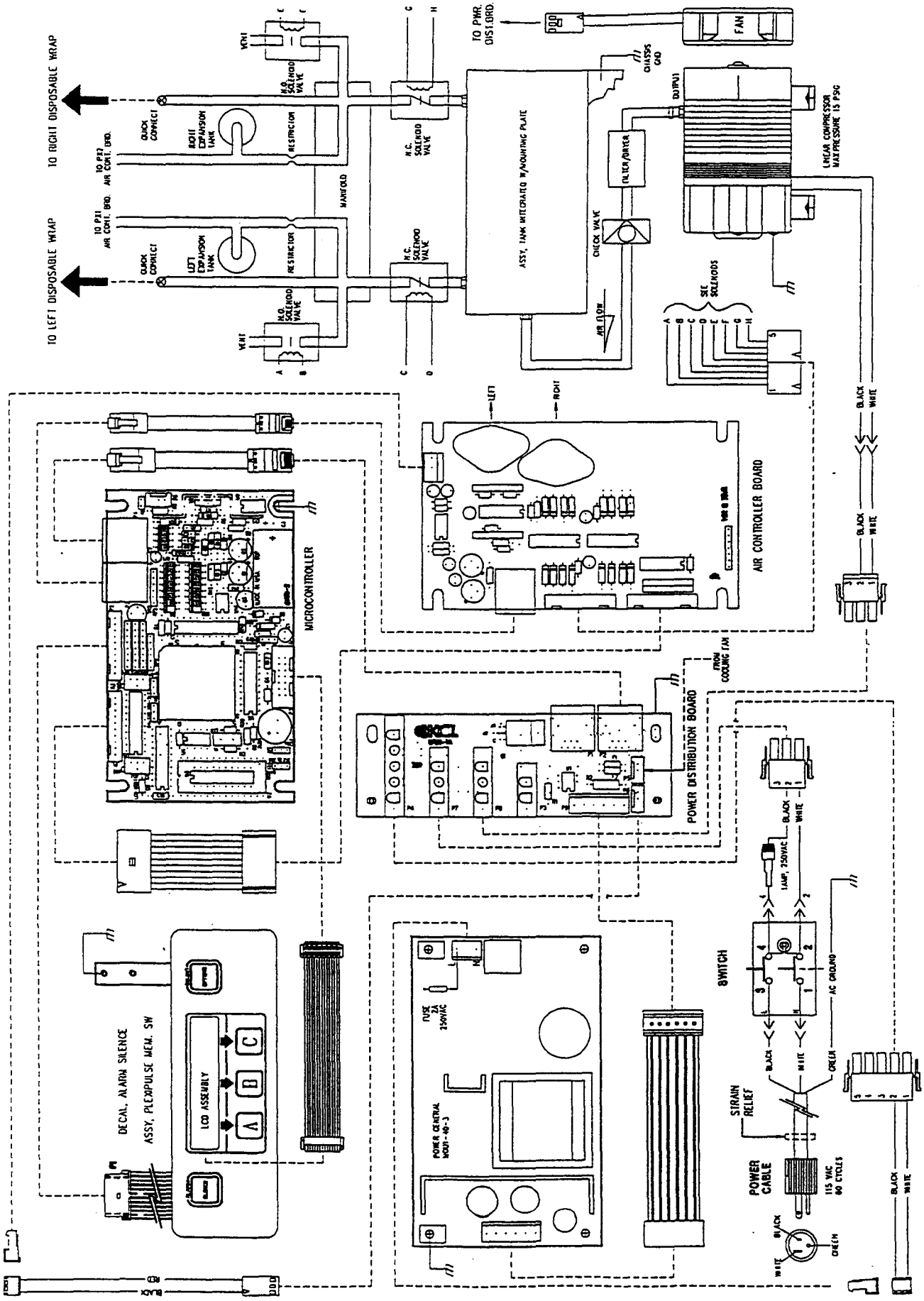
RED BUTTON UNIT - RECTANGULAR SOLENOID KIT



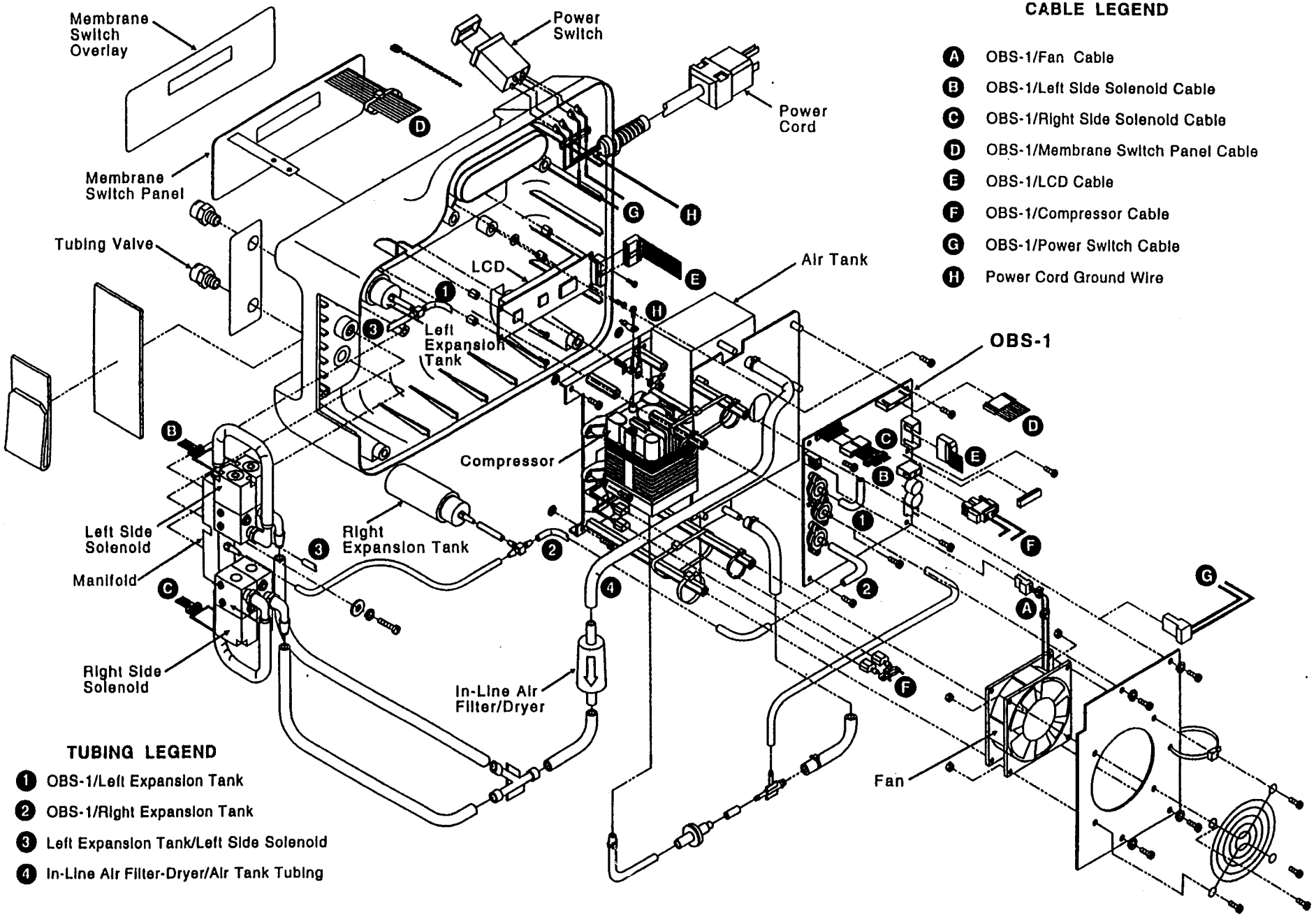
GREEN BUTTON UNIT - RECTANGULAR SOLENOID KIT



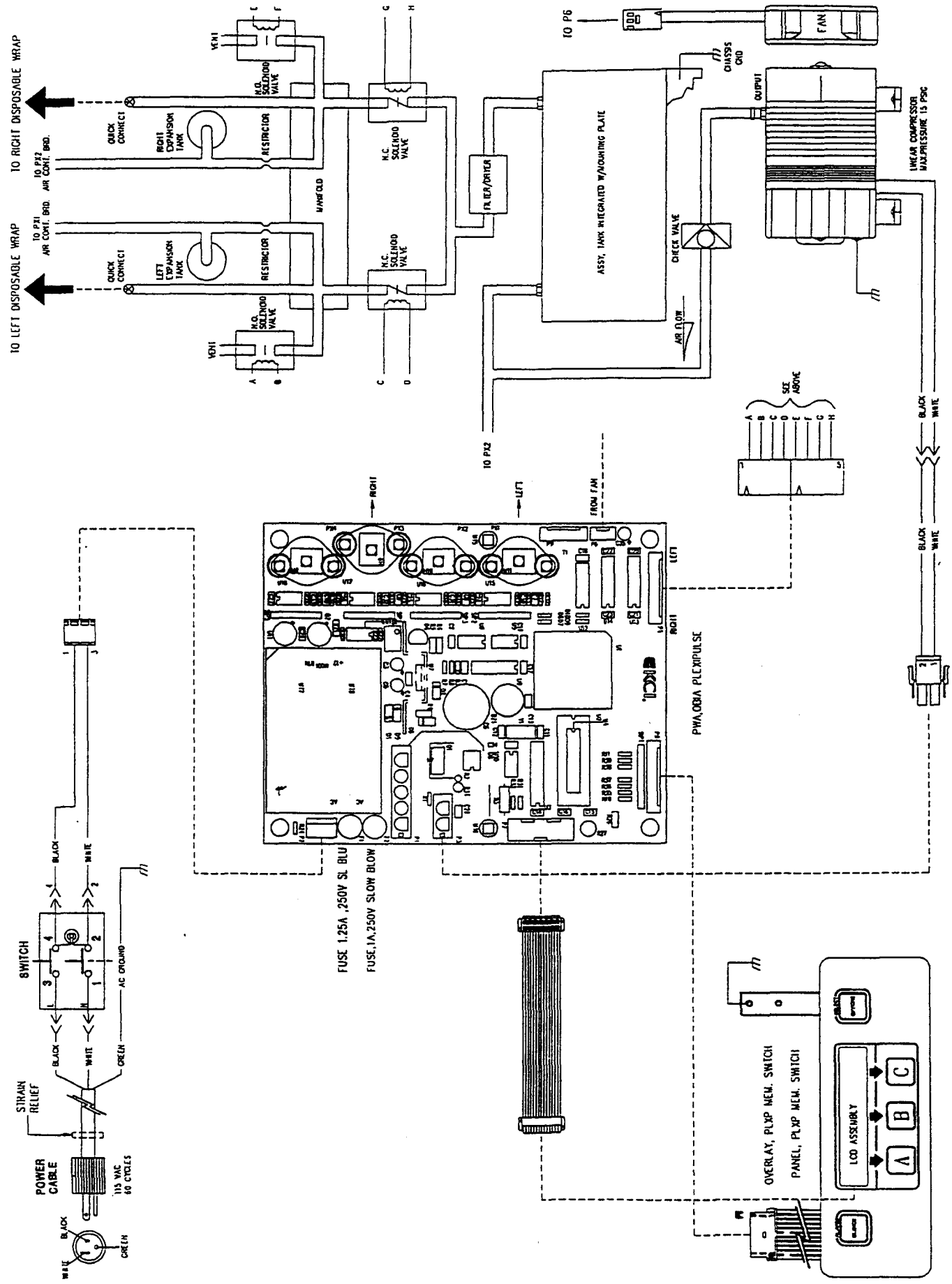
EXPLODED VIEW OF MAJOR PUMP COMPONENTS - "Red Button Unit"



SCHEMATIC LAYOUT OF ELECTRICAL AND PNEUMATIC SYSTEMS "Red Button Unit"



EXPLODED VIEW OF MAJOR PUMP COMPONENTS - "Green Button Unit"



SCHEMATIC LAYOUT OF ELECTRICAL AND PNEUMATIC SYSTEMS "Green Button Unit"

TROUBLESHOOTING TABLE
"Red Button Unit"

SYMPTOM	POSSIBLE CAUSE	REMEDY
Power switch is depressed, light switch is illuminated but LCD display remains blank.	1. Defective or disconnected LCD/GMCU cable.	1. Replace or reconnect LCD/GMCU cable.
	2. Defective or disconnected GPDU/GMCU cable.	2. Replace or reconnect GPDU/GMCU cable.
	3. Defective GMCU board assembly.	3. Replace GMCU board assembly.
	4. Defective or disconnected GPDU/Power Switch cable.	4. Replace or reconnect GPDU/Power Switch cable.
	5. Defective or disconnected GPDU/PSBU cables.	5. Replace or reconnect GPDU/PSBU cables.
Unit is on, LCD display is on but unit is not cycling.	1. Defective compressor.	1. Replace compressor if pressure is less than 725 mmHg.
	2. Defective or disconnected compressor cable.	2. Replace or reconnect compressor cable.
	3. Defective or disconnected solenoid cable.	3. Replace or reconnect solenoid cable.
	4. Defective solenoids.	4. Replace solenoids.
	5. Defective GACU-2A PC board assembly.	5. Replace GACU-2A PC board assembly.
Unit is on, LCD display is on, but unit is cycling on one channel or side only.	1. Disconnected internal hoses.	1. Reconnect hoses.
	2. Defective or disconnected solenoid cable.	2. Replace or reconnect solenoid cable.
	3. Defective solenoid.	3. Depress manual override red button or replace defective solenoid.

TROUBLESHOOTING TABLE
"Red Button Unit" - cont.

SYMPTOM	POSSIBLE CAUSE	REMEDY
Unit cycles but cannot customize or change settings.	1. Defective membrane switch.	1. Replace membrane switch and overlay.
	2. Disconnected membrane switch cable.	2. Reconnect membrane switch cable.
Disposable wraps are pulsing and audible alarm sounds.	1. Disposable wraps are not properly applied or wrapped.	1. Properly wrap the disposable, not too loosely or tightly but comfortably.
	2. Leaky or damaged disposable wrap.	2. Replace disposable wrap.
	3. Pump has leaky internal pneumatic system.	3. Replace defective components.
Disposable wraps are not pulsing and audible alarm sounds.	1. Disposable wrap has a kinked hose.	1. Clear kink or obstruction.
	2. Disposable wraps not connected.	2. Connect disposable wrap.
	3. Refer to "Unit is on, LCD display is on but unit is not cycling".	3. Refer to "Unit is on, LCD display is on but unit is not cycling".

TROUBLESHOOTING TABLE
"Green Button Unit"

SYMPTOM	POSSIBLE CAUSE	REMEDY
Power switch is depressed, light switch is illuminated but LCD display remains blank.	1. Defective fuse.	1. Replace fuse.
	2. Defective or disconnected power cable.	2. Replace or reconnect power cable.
	3. Defective or disconnected LCD cable.	3. Replace or reconnect LCD cable.
	4. Defective PC board assembly.	4. Replace PC board assembly.
Unit is on, LCD display is on but unit is not cycling.	1. Defective compressor.	1. Replace compressor if pressure is less than 725 mmHg.
	2. Defective or disconnected compressor cable.	2. Replace or reconnect compressor cable.
	3. Defective or disconnected solenoid cable.	3. Replace or reconnect solenoid cable.
	4. Defective solenoids.	4. Replace solenoids.
	5. Defective OBS-1 PC board assembly.	5. Replace OBS-1 PC board assembly.
Unit is on, LCD display is on, but unit is cycling on one channel or side only.	1. Disconnected internal hoses.	1. Reconnect hoses.
	2. Defective or disconnected solenoid cable.	2. Replace or reconnect solenoid cable.
	3. Defective solenoid.	3. Depress manual override red button or replace defective solenoid.
Unit cycles but cannot customize or change settings.	1. Defective membrane switch.	1. Replace membrane switch and overlay.
	2. Disconnected membrane switch cable.	2. Reconnect membrane switch cable.

TROUBLESHOOTING TABLE
"Green Button Unit" - cont.

SYMPTOM	POSSIBLE CAUSE	REMEDY
Disposable wraps are pulsing and audible alarm sounds.	1. Disposable wraps are not properly applied or wrapped.	1. Properly wrap the disposable, not too loosely or tightly but comfortably.
	2. Leaky or damaged disposable wrap.	2. Replace disposable wrap.
	3. Pump has leaky internal pneumatic system.	3. Replace defective components.
Disposable wraps are not pulsing and audible alarm sounds.	1. Disposable wrap has a kinked hose.	1. Clear kink or obstruction.
	2. Disposable wraps not connected.	2. Connect disposable wrap.
	3. Refer to "Unit is on, LCD display is on but unit is not cycling".	3. Refer to "Unit is on, LCD display is on but unit is not cycling".

MAINTENANCE

PERIODIC MAINTENANCE

Periodic maintenance, to be performed only by qualified service technicians at scheduled intervals while the unit is in operation, and after each patient, includes the following:

1. Exercise the PlexiPulse® pump's functions and observe operation of the unit, as outlined in the **Check-out Procedures** section of the **Preparation for Use** chapter of this manual. If any abnormalities are observed in operation of the unit, refer to **Troubleshooting** chapter of this manual for suggested remedies.
2. Inspect the PlexiPulse® pump unit for wear or damage. Unserviceable items should be replaced with an identical item.
3. Inspect In-Line Air Filter/Dryer every 6 months or 1,000 hours of operation for evidence of moisture saturation. When saturation has occurred, the filter paper within the case will turn red and should be replaced.
4. Infection Control Procedures as defined in the **Preparation For Use** chapter.

UNSCHEDULED MAINTENANCE

The PlexiPulse® unit is made up of several components which should not be opened, disassembled, or otherwise modified by the user. These parts should be replaced as a unit. Removal and replacement instructions as well as electrical/pneumatic schematics and exploded drawings have been provided for these assemblies.

The following Cautions and Warnings should be observed during all maintenance procedures:

WARNING

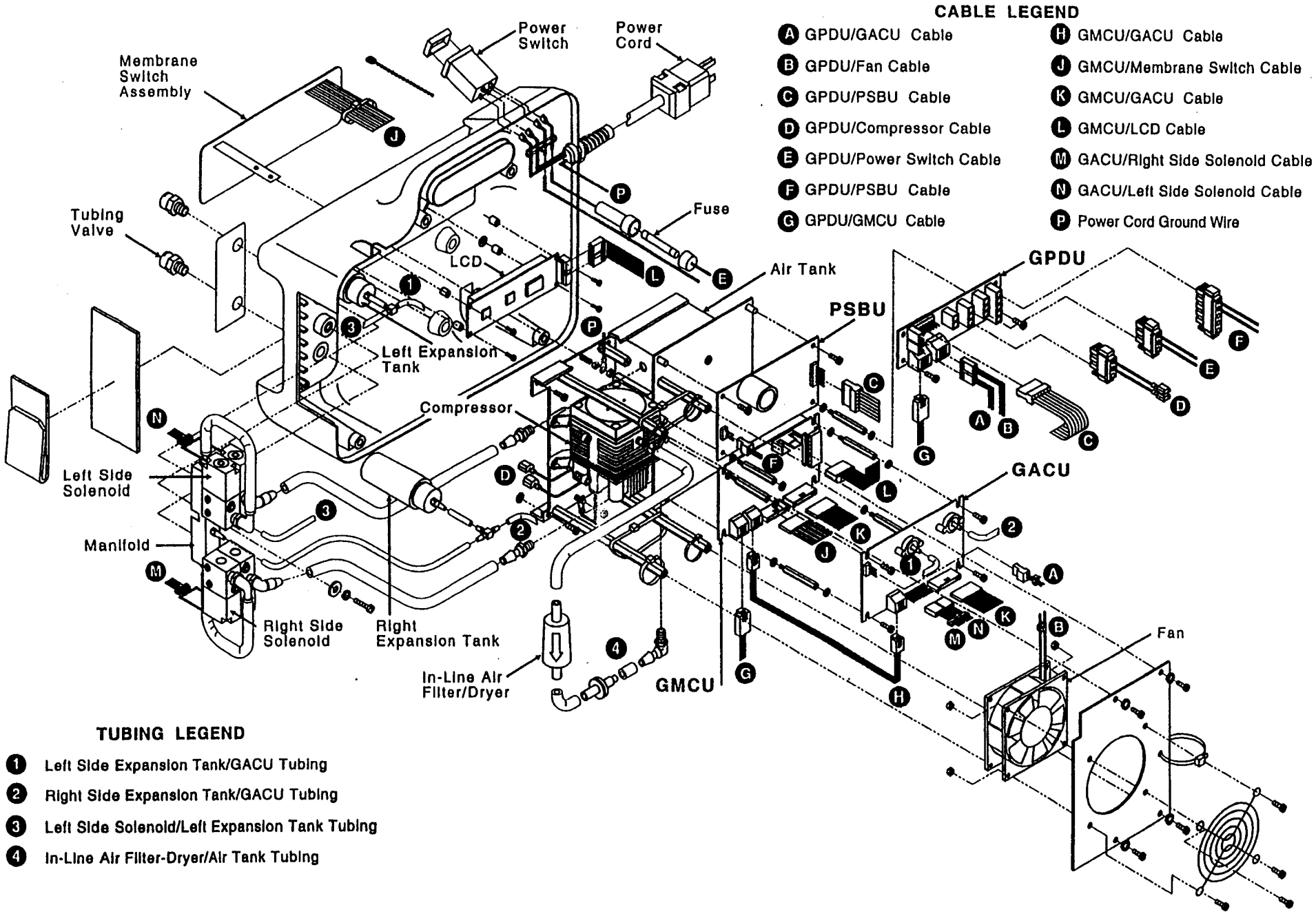
High voltage equipment to be serviced by trained qualified personnel only. Dangerous voltages can present a significant shock or burn hazard to personnel.

WARNING

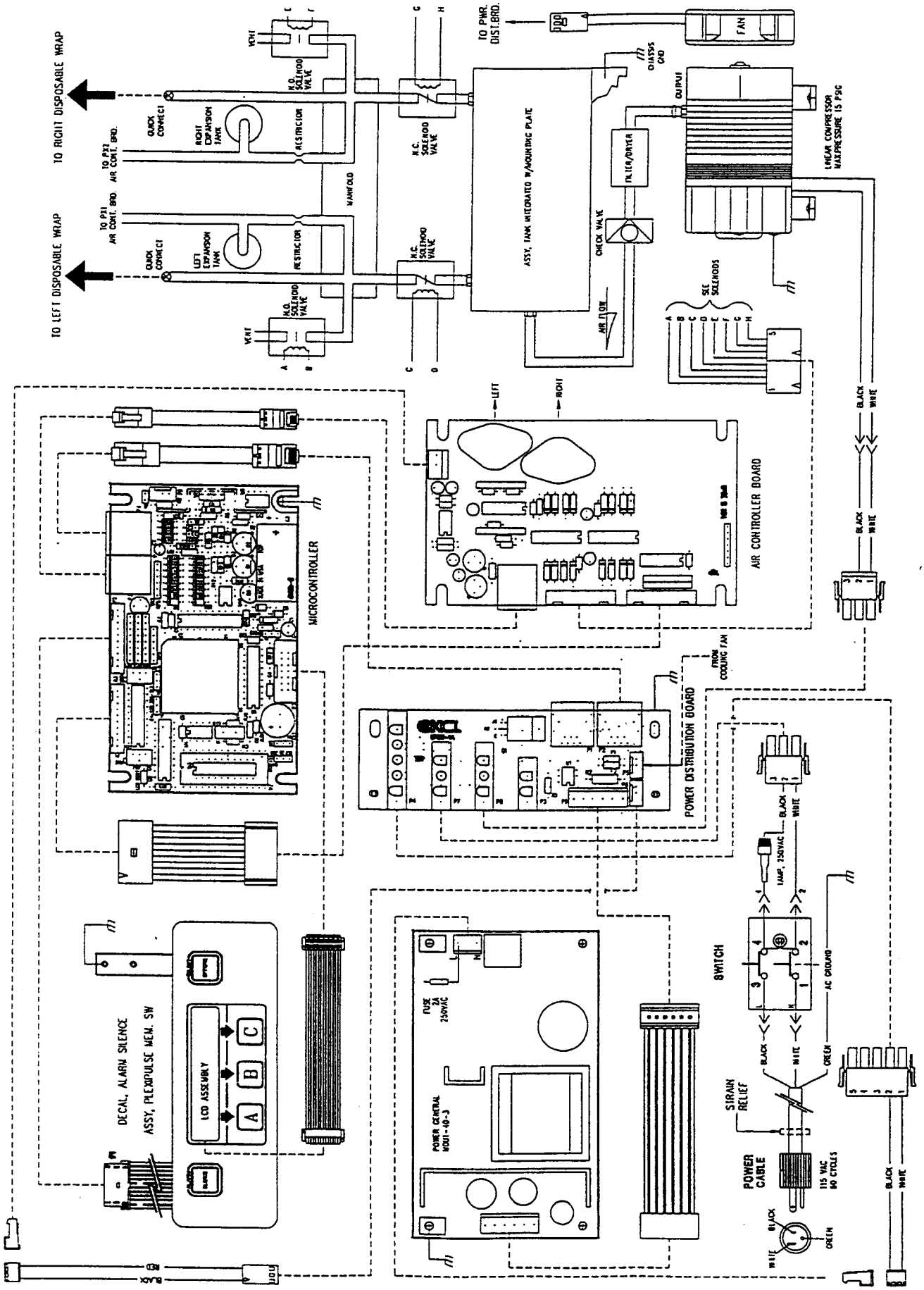
Power must be switched off and cord unplugged prior to any cable or electrical component installation, removal, or replacement.

CAUTION

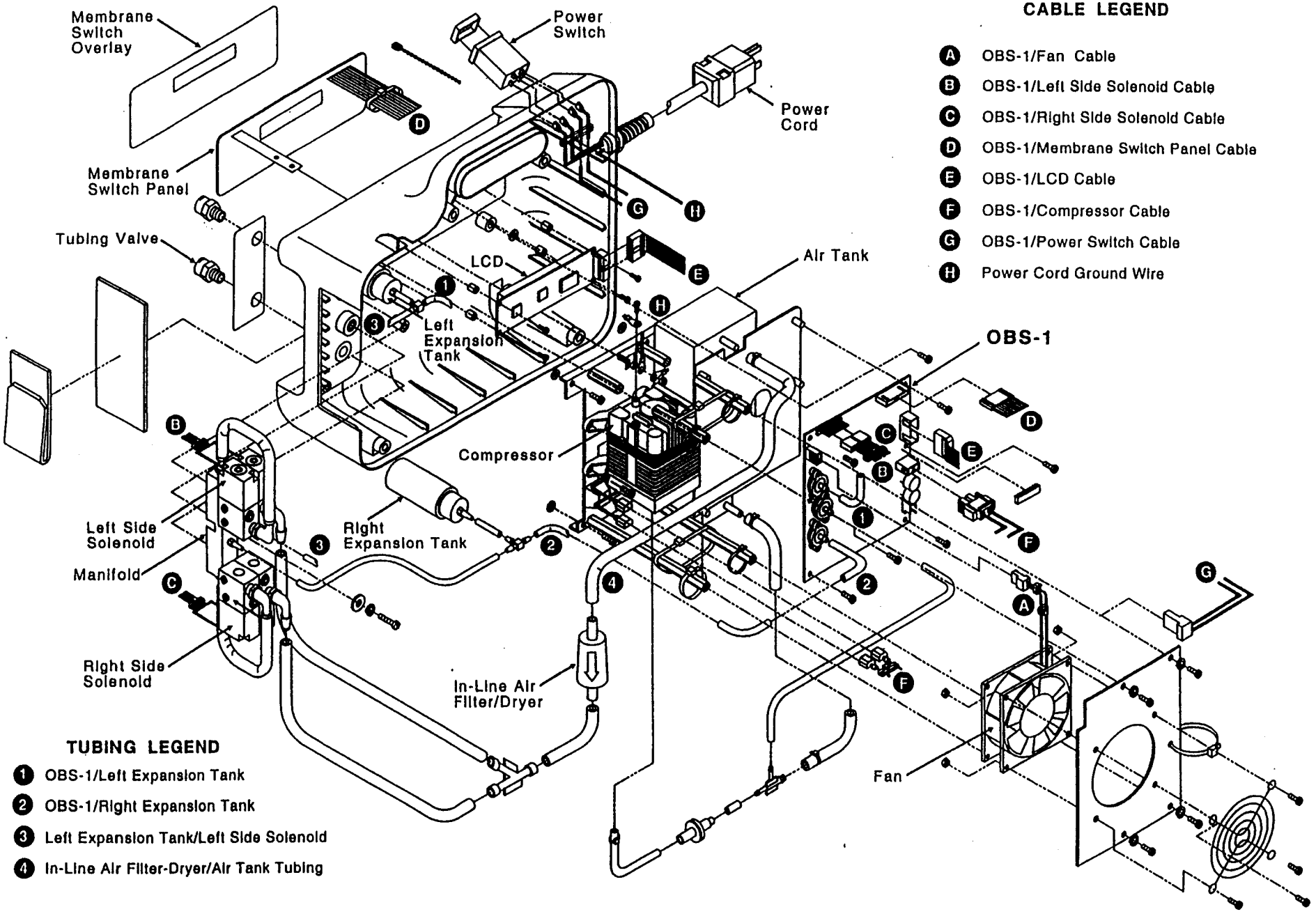
Carefully observe and mark locations and routing of all wiring removed while performing this procedure in order to properly locate connections during replacement. This wiring must be reinstalled exactly as it was before removal to insure unit operation.



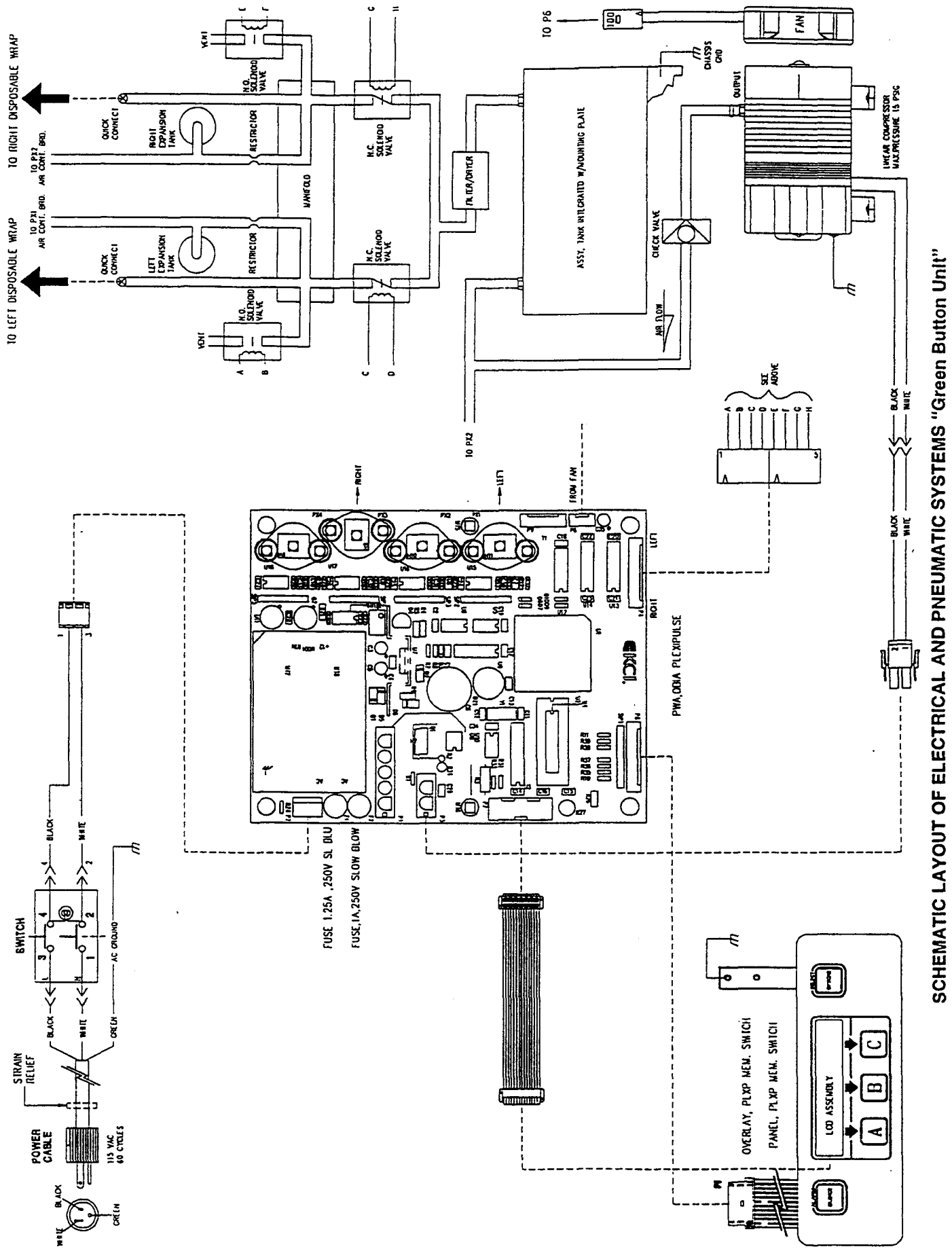
EXPLODED VIEW OF MAJOR PUMP COMPONENTS - "Red Button Unit"



SCHEMATIC LAYOUT OF ELECTRICAL AND PNEUMATIC SYSTEMS "Red Button Unit"



EXPLODED VIEW OF MAJOR PUMP COMPONENTS - "Green Button Unit"



SCHEMATIC LAYOUT OF ELECTRICAL AND PNEUMATIC SYSTEMS "Green Button Unit"

Open Pump Case

1. Unplug Power Cord.
2. Lay case face down on a cushioned surface to prevent scarring case.
3. Remove four Phillips head closure screws (one located at each end of case handle, one located at each case foot).
4. Lift and remove case back, exposing Fan, Power Switch, Printed Circuit Board(s), Solenoids and Manifold.
5. To close pump case; align case back with case front.
6. Replace the four Phillips head closure screws. Do not overtighten screws.

Power Cord Removal/Replacement

1. Unplug Power Cord, open case exposing Power Cord, Printed Circuit Board(s) and back face of Power Switch.
2. Remove two power cord spade connectors from back face of switch.
3. Trace green ground wire of Power Cord to the Compressor Mount Plate. Remove nut securing power cord ground wire to mount plate. Disconnect ground wire.
4. Remove Power Cord. Strain Relief is included with the replacement Power Cord so it need not be saved.
5. Reverse the above described procedure to replace the Power Cord.

Power Switch Removal/Replacement

1. Unplug Power Cord, open case exposing back face of Power Switch.
2. Remove four spade connectors from back face of switch.
3. Simultaneously press metal clips (located on left and right side of switch) against side of switch, while pushing switch forward and out the front face of case.
4. Reverse the above described procedure to replace Power Switch.

Fan Removal/Replacement

1. Unplug Power Cord, open case exposing Fan and Fan Mount Plate, which is attached to 5 1/2" long Standoffs.
2. Remove four Phillips head screws securing Fan Mount Plate to Standoffs.
3. Lift and flip Fan Mount Plate, exposing Fan on underside of plate. Remove four Phillips head screws securing Fan to Fan Mount Plate. Save screws and nuts for reuse.
4. Disconnect Fan Cable from Printed Circuit Board receptacle.
5. Reverse the above described procedure to replace Fan.

NOTE: *On Red Button Units, the Printed Circuit Board is designed so that the Fan cable and the GPDU/PSBU cable can be inserted into either of the two available receptacles on the GPDU.*

Printed Circuit Board Removal/Replacement

1. Unplug Power Cord, open case exposing Printed Circuit Board(s). Red Button Units have a total of 4 Printed Circuit Boards. Green Button Units have only 1 Printed Circuit Board. Refer to the exploded isometric drawing provided at the beginning of this chapter for identification of the board(s).
2. Disconnect all cables and tubing from Printed Circuit Board, noting location and orientation before disconnecting.

   NOTE: *If a top board is being removed for access to a lower board, cables and tubing do not have to be removed; board can be gently laid to one side, out of the way, if cable lengths permit.*
3. Remove Phillips head screws securing board to Standoffs. Gently lift Printed Circuit Board upward from case.
4. Reverse the above described procedure to replace the Printed Circuit Board(s).

In-Line Air Filter/Dryer Removal/Replacement

1. Unplug Power Cord, open case exposing Fan and In-Line Air Filter/Dryer.
2. Remove Fan/Fan Mount Plate Assembly from Standoffs, and set aside, for best access to the Filter/Dryer below (optional).
3. Clip and remove ty-wrap securing Filter/Dryer to Standoff.
4. Gently pull 3/16" tubing from ends of Filter/Dryer. Discard Filter/Dryer and replace with a new unit that has **white** filter paper, indicating the filter is new and in good condition.

   NOTE: *If the filter paper is **red**, the paper is saturated with moisture and should be replaced.*
5. Reverse the above described procedure to replace the In-Line Air Filter/Dryer.

Compressor Removal/Replacement

1. Unplug Power Cord, open case exposing Fan and Fan Mount Plate.
2. Remove Fan/Fan Mount Plate Assembly from Standoffs, and set aside, to expose the Compressor below.
3. Clip and remove ty-wrap securing Filter/Dryer 3/16" tubing to outlet on Compressor. Gently pull 3/16" tubing from Compressor outlet.
4. Disconnect Compressor ground wire.
5. Disconnect the Compressor Cable from Printed Circuit Board at the spade connectors.
6. Remove four Allen head Cap screws securing the compressor rubber footings to the mount plate.
7. Lift and remove Compressor from case.
8. Reverse the above described procedure to replace the Compressor.

Foam Air Filter Removal/Replacement

1. Unplug Power Cord.
2. Air Filter is exposed on the back side of the case. Pinch the center of the filter and lift gently, pulling filter up and away from case.
3. Replace Air Filter by inserting edge of filter between outside face of case and filter cage located inside the case. Continue inserting filter around the entire filter opening. When properly inserted, the filter will lay smoothly.

Solenoid/Manifold Removal/Replacement

1. Unplug Power Cord, open case exposing Fan, Manifold and Solenoids.
2. Remove Fan/Fan Mount Plate Assembly from Standoffs, and set aside, for best access to the Solenoid/Manifold Assembly (optional).
3. Gently pull 3/16" tubing from the barbed fittings located on the Solenoids. This tubing runs to the Air Tank.

   NOTE: *The 3/16" tubing between the Solenoids and Manifold need not be disconnected, since the Solenoid Replacement Kit includes the Manifold and is already plumbed.*
4. Gently pull 1/8" tubing from the restrictor fittings located on the Manifold. This tubing runs to the Expansion Tanks (bottles).
5. Disconnect the Solenoid Cables from Printed Circuit Board receptacles.
6. Remove one Round head screw, (Allen head Cap screw on some early models), Lock Washer and Flat Washer located at the Manifold, between the two restrictors. This screw secures the Manifold to the case.
7. Lift and remove Solenoid/Manifold Assembly from case.
8. Reverse the above described procedure to replace the Solenoid/Manifold.

   NOTE: ***The round solenoids that appear in some Red Button Units are arranged and plumbed slightly differently from the rectangular solenoids. However, the Solenoid Replacement Kit (containing the rectangular solenoids) will work regardless of which arrangement is being replaced.***

   When the round solenoids are replaced with the rectangular solenoids during maintenance procedures, the Expansion Tanks should be relocated from the corners of the case, over approximately 3", to the clear area between the 5 1/2" standoffs, near the top and bottom edges of the case.

LCD Removal/Replacement

1. Unplug Power Cord, open case exposing Fan and Printed Circuit Board(s).
2. Remove Fan/Fan Mount Plate Assembly from Standoffs, and set aside.
3. Gently pull 3/16" tubing from the barbed fittings located on the Solenoids. This tubing runs to the Air Tank.
4. Gently pull 1/8" tubing from the restrictor fittings located on the Manifold (optional). This tubing runs to the Expansion Tanks (bottles).
5. Disconnect the Power Switch Cables from Printed Circuit Board receptacle.
6. Trace green ground wire of Power Cord to the Compressor Mount Plate. Remove nuts securing power cord ground wire and Membrane Switch Assembly ground shield to mount plate.
7. Disconnect the Membrane Switch Cable from Printed Circuit Board receptacle.
8. Disconnect the LCD Cable from Printed Circuit Board receptacle.
9. Remove four Phillips head screws located near the edges of the Compressor Mount Plate, near the base of each 5 1/2" Standoff. These screws secure the mount plate to the case.
10. Lift and remove the Tank/Printed Circuit Board/Compressor/Fan Assembly from the case as one unit, exposing the LCD and Membrane Switch Assembly below.
11. Remove four Phillips head screws securing the LCD to the case. Lift and remove the LCD from the case opening in which it sits.
12. Reverse the above described procedure to replace the LCD.

Membrane Switch Assembly Removal/Replacement

1. Follow Steps 1 - 11 listed above in **LCD Removal/Replacement**.
2. Press firmly on back face of Membrane Switch Assembly that is exposed when LCD is removed. Membrane Switch Assembly is glued in place, but will separate from front of case.
3. Reverse the above described procedure to replace the Membrane Switch Assembly.

REPLACEMENT PARTS LISTING

The following replacement parts are available for the repair and maintenance of the PlexiPulse® pumps. Refer to the drawings at the end of this chapter for identification and location of replacement parts listed below.

NOTE: *The words "Red" and "Gm" in parenthesis in the QTY. column are used to distinguish Red Button Units from Green Button Units [e.g., 7(Red) 5(Gm), means 7 of these components are found in the Red Button Unit and 5 are found in the Green Button Unit].*

IDENTIFICATION NO. and DESCRIPTION		PART NO.	QTY.
MAJOR ASSEMBLIES			
1	PlexiPulse® Pump	205300	1
2	Left and Right Foot Wrap Kit (5 sets)	235340	1
3	Universal Calf Wrap Kit (10 ea.)	400010	1
4	Left and Right Foot and Calf Wrap Kit (Combo Wrap) (3 sets)	400011	1
5	Custom Wrap (10 ea.)	235502	1
PUMP MAJOR COMPONENTS - FRONT SHELL HALF			
Mechanical Components			
6	Nut, 8-32 Hex ZP	20109	7(Red) 5(Gm)
7	Rubber Foot - .50 dia. x .14 Bumpon	22141	4
8	Bumper - .88 dia. x .40 Bumpon	20759	2
9	In-Line Air Filter/Dryer (incl. filter and plastic case)	21274	1
10	Standoff, 6-32 x 1 1/2 Hex M/F NP	20196	6
11	Screw, 6-32 x 3/8 PHP ZP	20051	8 (Red)
11	Screw, 6-32 x 1/4 PHP ZP	20040	6 (Gm)
12	Standoff, F/F #8-32 x 5 1/2	205371	4
13	Screw, 8-32 x 3/8 PHP SST	20005-2	4
14	Screw, 1/4-32 x 3/4 RDHD ZP (at manifold)	20666-3	1 (Red)
14	Screw, 1/4-20 x 1 RHP ZP (at manifold)	20030	1 (Gm)
15	Washer, 1/4 Flat ZP (at manifold)	20257	2

IDENTIFICATION NO. and DESCRIPTION		PART NO.	QTY.
16	Squeeze Bottle Dispenser	20617-2	2
17	Business Card Holder	205341	1
18	Cover Plate	205321	1
19	Coupling, 1/8 Quick Connect	20652-1	2
20	Coupling, 1/4 Quick Connect	20609-2	2

Pneumatic Plumbing Components

21	Manifold/Solenoid Assembly	205317	1
22	Tubing, 1/8" dia. Replacement	205372	2.5 Ft
23	Tubing, 3/16" dia. Replacement	205373	2.5 Ft
24	Valve, 1/4" Inline Check	20665-1	1
25	Valve, 1/8" Inline Check	20614-2	1

Electrical Components

26	Power Cord	205337	1
27	PlexiPulse® Membrane Switch Assembly	205310	1
28	PlexiPulse® Membrane Switch Panel (under Decal)	205315	1
29	PlexiPulse® Membrane Switch Decal	235309	1
30	LCD (Liquid Crystal Display) N-30 Assembly	204133	1
31	Screw, 4-40 x 1/4 PHP ZP (attaches LCD to case)	20068-3	4
32	Lighted Pushbutton (power) Switch	20495-2	1
33	Lighted Pushbutton (power) Switch	20466-8	1
34	Red (power) Lens	20416-8	1
35	Green (power) Lens	20465-8	1
36	Fuse, 1 amp	20470-8	1
37	Fuse, 1 amp	21456-1	1
38	Fuse, 1.25 amp	21460-1	1
39	Cooling Fan Assembly	205314	1
40	Screw, 8-32 x 1/2 PHP ZP (attaches fan to mount plate)	20052	4

IDENTIFICATION NO. and DESCRIPTION		PART NO.	QTY.
41	EPROM, PlexiPulse® CMOS 256	205361	1
42	EPROM, PlexiPulse® CMOS 512	235313	1

Printed Circuit Board Assemblies

43	GMCU-2A - MicroController Board Assembly	210025	1
44	GACU-2A - Air Control Board Assembly	210503	1
45	GPDU-1A - Power Distribution Board Assembly	210505	1
46	PSBU-1 - Power Supply Board Assembly	20496-7	1
47	OBS-1 - PlexiPulse® Board Assembly	210528	1

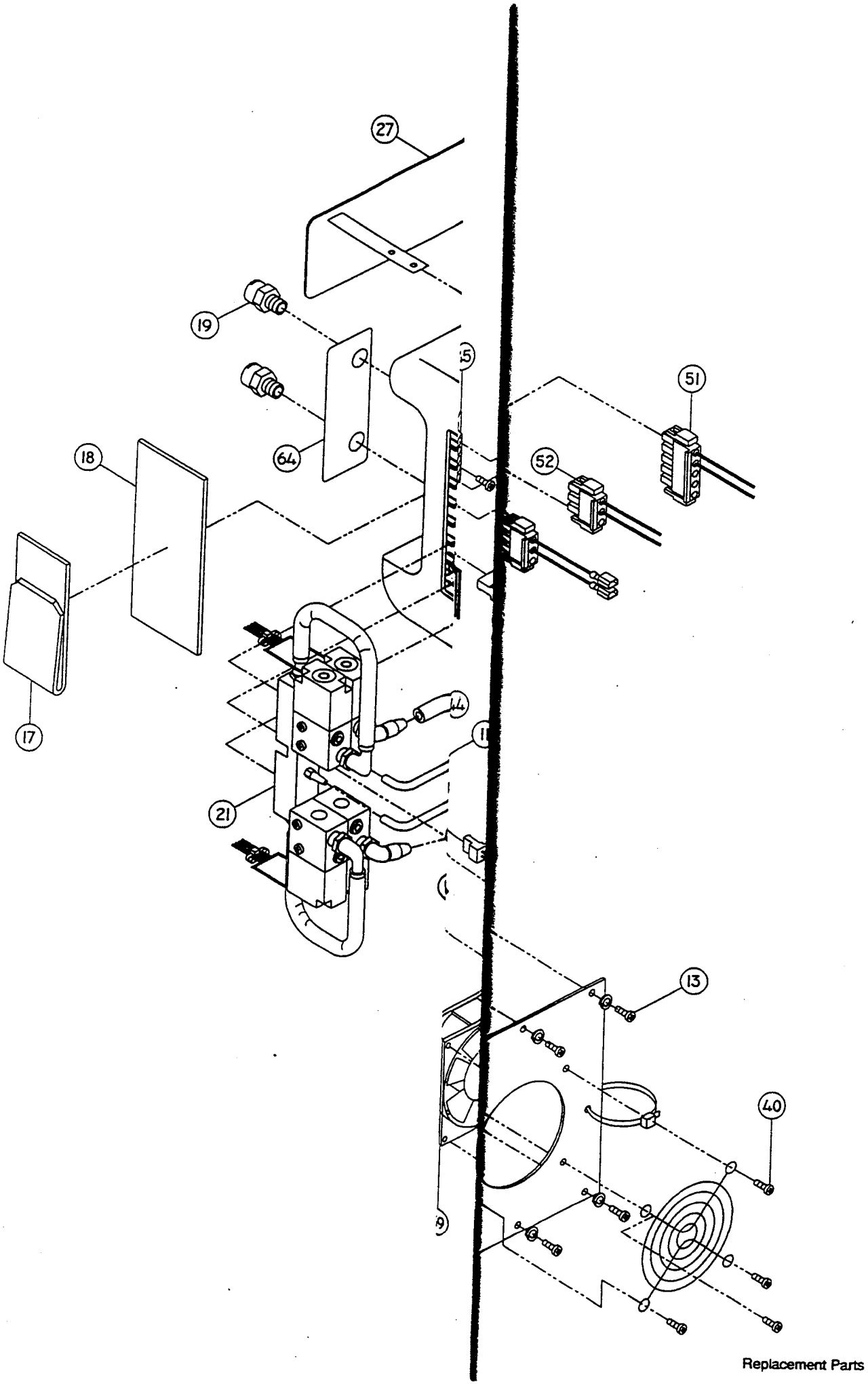
Cable Assemblies

48	GACU/GMCU 6-pin Telephone Cable	200710	1
49	GACU/GMCU 10-pin Cable	204748	1
50	GACU/GPDU 3 Conductor Cable	205363	1
51	GPDU/PSBU 2 Conductor Cable	205391	1
52	GPDU/Power Switch 2 Conductor Cable (incl. fuse holder)	205335	1
53	GPDU/PSBU 6 Conductor Cable	205365	1
54	GPDU/Compressor 2 Conductor Cable	205312	1
55	GPDU/GMCU 8-pin Telephone Cable	205311	1
56	LCD/GMCU 14 Conductor Cable	205336	1
57	PlexiPulse® OBS Power Cable	205393	1
58	Compressor Power 11" Cable	235311	1

PUMP MAJOR COMPONENTS - BACK SHELL HALF

59	Hanger Arm - Replacement in the field may compromise integrity of unit. Send Back Shell Half to factory for refurbishment/replacement.		
60	Foam Air Filter	205329	1
61	Screw, 10-32 x 1/2 PHP ZP (case closure screws)	20077-2	4

IDENTIFICATION NO. and DESCRIPTION		PART NO.	QTY.
KITS			
-	Solenoid Replacement Kit (incl. manifold, fittings and 2 pair solenoids)	205364	1
-	Compressor Kit	205366	1
62	8-32 x 1/4 AC ZP Screw	20063-1	4
DECALS			
63	Left/Right Decal	235310	1
-	Made in USA Decal	235351	1
-	Pressure Setting Decal	235352	1
-	Alarm Silence Decal	235350	1
-	PlexiPulse® Logo Decal	205301	1
64	Left Foot/Right Foot Decal	205305	1
-	NuTech® Logo Decal	205334	1
-	Caution Elec Hzrd Decal	200624	1
-	Patent Pending Decal	205362	1
-	Caution Federal Law Restricts	205360	1
MISCELLANEOUS			
65	Removable Ty-wrap (attach Quick Reference Guide)	20648	1
66	3/4" Ty-wrap, mix bundle	20847	2
-	Quick Reference Guide (NuTech®)	235344	1
-	PlexiPulse® Operations and Maintenance Manual	235349	1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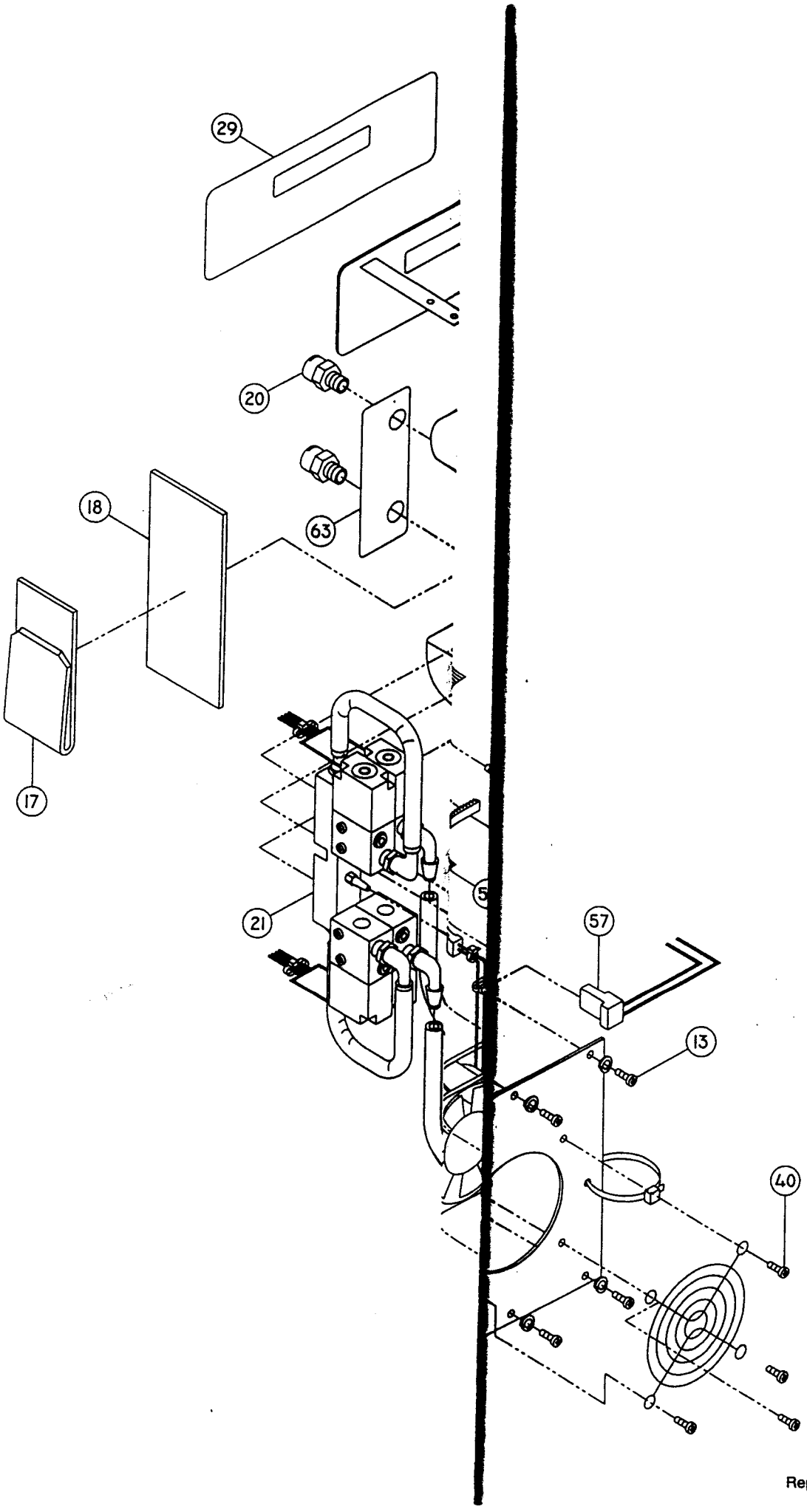
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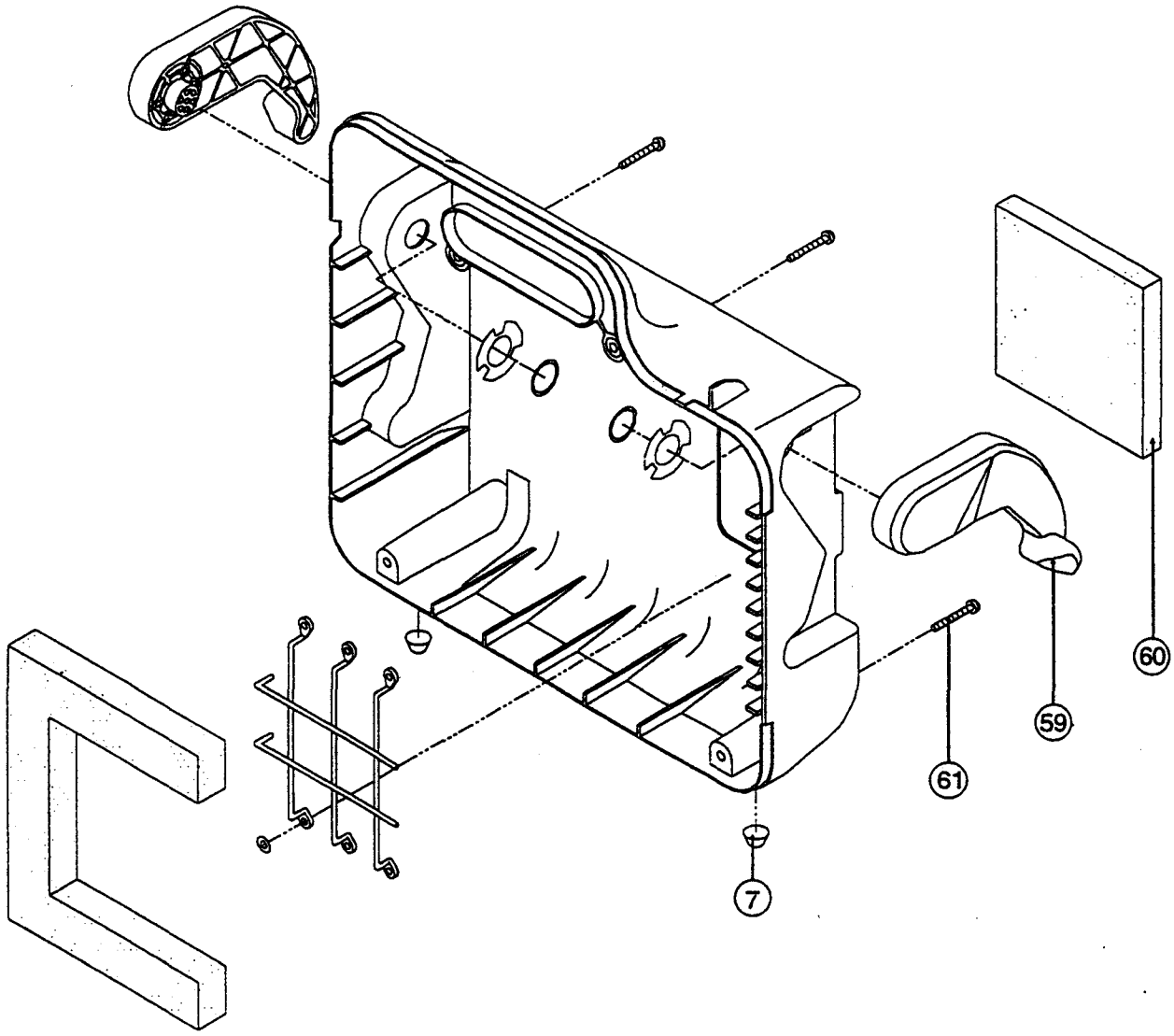

EXPLODED VIEW OF BACK SHELL MAJOR COMPONENTS

SPECIFICATIONS

Pump Dimensions	12" L x 10 3/4" W x 7" D
Pump Weight	11 lbs.
Fabric (incl. Foot, Calf and Custom Wraps)	Lycra Interior
Compressor Operating Pressure	717 - 1150 mmHg
Maximum Output Pressure	180 +/-15 mmHg

ELECTRICAL DATA:

Voltage	115 VAC
Frequency	60Hz
Maximum Current Consumption	0.33 Amp
Maximum Electrical Leakage	Less than 100 microamps
Power Cord	16' Hospital Grade

**Specifications subject to change without notice.

QUESTIONS AND INFORMATION

For additional information concerning the PlexiPulse® pump, or its operation, please contact:

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P.O. Box 33698
San Antonio, Texas 78265-3698
Call Toll Free 1-800-446-6303

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